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UNIVERSITY OF CALIFORNIA, SAN DIEGO

Bringing Climate Change Down to Earth:

Science and Participation

in Canadian and Australian Climate Change Campaigns

A dissertation submitted in partial satisfaction of the
requirements for the degree of Doctor of Philosophy

in

Sociology (Science Studies)

by

Miriam Elana Padolsky

Committee in Charge:

Steven Epstein, Chair
Geoffrey Bowker
Jeffrey Haydu
Chandra Mukerji
David Pellow

2006

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The dissertation of Miriam Elana Padolsky is approved, and it is acceptable in quality and form for publication on microfilm:

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Chair

University of California, San Diego
2006

DEDICATION

To my family

and to Anatole.

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ACKNOWLEDGEMENTS

This project would not have been possible without the help of many others, and I am grateful for all the support and assistance that I have received.

I want to begin by thanking all of those who so generously participated in this research. I learned so much from speaking with people during interviews and from more informal conversations throughout my field work. In particular, I would like to thank those who welcomed me into their workplaces. The Australian Conservation Foundation Melbourne office, the Australian Greenhouse Office Community Partnerships Branch, the Conservation Council of the South East Region and Canberra, Environment Canada's Climate Change Bureau, and the Friends of the Earth Melbourne office all permitted me to spend time with them and helped me feel at home. I also thank the individuals from the David Suzuki Foundation, Pollution Probe, The Pembina Institute for Appropriate Development, The Otesha Project, and EnviroCentre who took the time to participate in an interview with me. From these interactions, I came to admire the passion and dedication of these environmentalists.

I have been fortunate to have a wonderful dissertation committee. My advisor, Steve Epstein, has been an inspiration for many years. I would like to thank him for teaching me so much, for guiding me through the Ph.D. process, and for always encouraging me to produce my best work. I have benefitted greatly from many cross-disciplinary conversations with Jeff Haydu throughout my degree. Jeff also provided thoughtful and insightful comments on drafts throughout the writing process. Chandra

Mukerji helped me broaden my interdisciplinary perspective and gave me very useful advice on how to write a dissertation. Geof Bowker provided valuable preparation for my dissertation research by guiding me through the analysis of my very first empirical research project; he also provided enthusiasm and encouragement during my dissertation research and writing. David Pellow kindly agreed to join my committee later in the process; I have appreciated his perspective as a fellow environmental sociologist.

I have moved through the Ph.D. process with colleagues and friends, who offered much needed solidarity and support. I have learned both with them and from them. I would like to thank Mariano Bargero, Charlene Bredder, Nadav Gabay, Michael Haedicke, Anat Leibler, Moira Mackinnon, and David Ribes. It has not always been easy to write my dissertation away from my university. I have appreciated the encouragement from my Ottawa friends, especially Julie Lax, Hilary Myron, Kathy Tsui, and Amy Watson.

This dissertation has also required financial and logistical backing. A University of California Pacific Rim Research Program Dissertation Fellowship allowed me to conduct my field work in Canada and Australia. I am also grateful for funding throughout my Ph.D. from the UCSD Humanities Fellowship, Sociology Department, and Science Studies Program. In Ottawa, Bridgehead Coffeehouse provided me with "office" space.

It goes without saying that I would not be here today without my family. For instilling in me and sharing with me their love of learning, I would like to thank all my

family members, especially my parents, Enoch and Maxine, and brother, Josh Padolsky.

Finally, I cannot say enough to thank Anatole Papadopoulos, who has been with me every step of the way. His support and love have been unwavering.

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ABSTRACT OF THE DISSERTATION

Bringing Climate Change Down to Earth:

Science and Participation

in Canadian and Australian Climate Change Campaigns

by

Miriam Elana Padolsky

Doctor of Philosophy in Sociology (Science Studies)

University of California, San Diego, 2006

Professor Steven Epstein, Chair

This dissertation examines Canadian and Australian climate change campaigns as cases of science in the public sphere. I pose three interconnected research questions. What is the role of science in climate change campaigns? How is the use of science affected by the type of campaign institution: government or non-government? How does the national policy environment, particularly Canada's ratification and Australia's rejection of the Kyoto Protocol, affect the campaigns? In both Canada and Australia, I used methods of participant observation, interviews, and document analysis to analyze the campaigns of a government office and a non-government organization. I found that campaigners use natural and social science, along with technologies of quantification, to motivate the public to take action on

climate change. Their uses of science and numbers represent different ways of framing the problem they are trying to solve; they also represent different ways of configuring the public's participation in the campaigns. Furthermore, I demonstrate that campaigners' uses of science and numbers are oriented not only towards their audiences but also towards the concerns of their own organizations, their government or non-government counterparts, and their national political leaders. Finally, campaigners' epistemological, institutional, and national considerations influence how they attribute responsibility for environmental protection. I argue that campaigners operate under different models of the relationship between individuals, non-government organizations, and governments; these models of responsibility affect the form and content of public participation. This study thus emphasizes the interconnections between ways of knowing, political actions, and forms of public participation. As such, this work contributes to the literatures on public understanding of science, science and politics, social movements, and studies of national and international environmental politics.

CHAPTER 1

INTRODUCTION: SCIENCE AND PARTICIPATION

Introduction

Sitting in a café in Canberra, Australia, a veteran environmentalist spoke passionately about his latest campaign: working with communities from around Australia to reduce the greenhouse gas emissions that cause climate change. The environmentalist described the crux of his climate change campaign as follows:

> It's just incredibly important, and I think it's part of enhancing democracy. … If you want people to really make these big changes and address what is undoubtedly one of the top two or three environment issues facing the planet, you've got to take people with you. How do you do that? How do you really get people to say: "Yeah, this is an important issue. I want to do something in my own life. I want to do something that makes a difference." A lot of people just feel powerless, they feel overwhelmed, they think: "Yeah, I can watch it on the news, but I'll leave it to the big boys because there's nothing I can do." Now a program like this says: "You can be powerful. You can make a difference in your backyard. And you don't have to be a millionaire, you don't have to be a [Cabinet] Minister, you don't even have to be a senior bureaucrat, or a leader in industry. You can just be you. You can get out there and change a light bulb."

In just these few sentences, this environmentalist raises several of the key challenges and paradoxes of climate campaigning. How should they persuade people that climate change is a serious issue? How should they convince individuals that they have a role to play? How should they motivate people to participate? What form should this participation take? Can changing a light bulb change the world?

This study examines the climate change campaigns of a government office and a non-government group in each of Canada and Australia. I use the term "climate change campaigners" to refer to civil servants from government offices and staff from environmental non-government organizations who are running campaigns about climate change aimed at the public. These campaigners have a difficult job. Skeptics question whether the problem they are trying to solve even exists. Campaigners' institutional support is often unreliable. The two government campaigns profiled here, in Canada and in Australia, had their funding cancelled or redirected, also affecting almost a dozen environment groups in each country that were relying on government funding from these campaigns. In addition, Canada and Australia have the highest greenhouse gas emissions per capita in the world, demonstrating the magnitude of the task facing campaigners (Litfin 2000, Turton 2004). Furthermore, climate change is conceptually complex and global in scope. Campaigners are trying to "bring climate change down to earth," to make it understandable and tangible and to motivate the public to take action. Campaigners, though, are not seeking merely to impart a few facts about climate change but rather to prompt new patterns of behaviour among their audiences. They hope that perhaps they may even be able to trigger a broad-scale cultural shift in values towards greater care for the environment.

I approach climate change campaigns as a case study of science in the public sphere. Unlike an environmental problem such as clearcut logging, climate change is not immediately visible through casual observation. Instead, climate change is defined by projected temperature graphs based on computer models and by predictions of the

potentially catastrophic impacts of climate change on the environment, and on human health and welfare. In addition to this science of climate change, as we will see, campaigners engage with a social science of social change, using and creating social scientific methods of generating public participation. Climate change thus offers a valuable opportunity to study the place of science in our culture, and the relations between science and politics.

I address three interconnected questions towards climate change campaigns. First, what is the role of science in climate change campaigns? In particular, I examine these campaigns both as a case of public engagement with science (on the part of campaigners) and as a case of the creation of opportunities for public participation (on the part of the audiences for the campaigns). Second, what is the impact of the type of institution, whether government or non-government, on climate change campaigns? I focus on the interactions between the government and non-government campaigns as well as a comparison between the two types of institutions. I am especially concerned with how they compare or interact with respect to the use of science. I examine government and non-government campaigns because these are the institutions that are most centrally involved in crafting campaigns aiming to influence individuals' behaviour. Third, what is the effect of being a party to the Kyoto Protocol, the major international agreement on climate change? I selected Canada and Australia for the comparison because their approach to climate change politics has been broadly similar, except for Canada's ratification and Australia's rejection of the Kyoto Protocol. Similarly to the government and non-government comparison, I

explore both the interactions between the Canadian and Australian campaigns, as well as the similarities and differences between the two. My investigation centres on how the national policy decision with regards to Kyoto ratification affects the role of science in the campaigns, and how the type of institution influences the relationship between Kyoto policy and the use of science. My three research questions, then, are fundamentally intertwined. I discuss my comparative design further in Chapter 2.

In this chapter, I begin with a brief history of international climate change politics. I then place my study in the context of past Science and Technology Studies (STS) work on science and politics. In particular, I focus on the sub-field of Public Understanding of Science (PUS). I analyze the evolution of PUS analysis and identify several limitations of this approach. I also discuss how I conceptualize my own study as both a contribution to and a departure from this field. Finally, I provide a breakdown of the chapters to come and an overview of this study's central claims.

Climate Change: An Overview

What is climate change? This seems like a necessary question to answer at the outset. At the same time, this is not a straightforward question because how to frame this problem and its solutions is an issue at the heart of the campaigns under examination in the text to follow. For example, some environment groups in Australia call climate change "greenhouse pollution," but the Australian government rejects this

terminology. As a starting point to the overview of international climate change politics, though, I will describe the definition of climate change used in United Nations documents. These documents represent widespread consensus from scientists and governments worldwide. According to Article 1.2 of the United Nations Framework Convention on Climate Change (UNFCCC), then, climate change is defined as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods" (UNFCCC 2004, p.8). Note that this definition distinguishes between "natural" fluctuations in climate over time and changes in climate caused by the activities of humans. The specific causes of climate change are the build-up in the atmosphere of so-called "greenhouse gases." These include carbon dioxide, methane, nitrous oxide, and fluorocarbons. In 2001, carbon dioxide was responsible for 81% of emissions from developed countries (UNFCCC 2004, p.9). Carbon dioxide is emitted mainly from burning fossil fuels such as coal and oil, as part of industrial processes, transportation, or commercial and residential energy use. Methane is emitted from transportation, agricultural processes, and waste; nitrous oxide is mainly from agricultural sources (UNFCCC 2004, p.9). The predicted impacts of climate change are still debated (and will be discussed further in Chapter 3); however, we can preliminarily state that they may include sea-level rise, more frequent and more severe "extreme weather events" like hurricanes and droughts, and accelerated species extinctions (UNFCCC 2004).

What is my position on the ontological status of climate change? In some ways, this question is orthogonal to the ones addressed in my work. For my purposes, it does not really matter whether climate change exists, who or what caused it, and what its potential consequences will be. Of course, I do have a position, which is that I "believe" in human-induced climate change. More importantly, climate change campaigners believe that human-induced climate change exists and act based on that premise. It is not my purpose here to deconstruct their belief or to show how it was constructed. However, because many STS studies ask just such questions, I would like to offer a brief comment on my orientation to the subject. I have chosen to follow Latour (2004) by approaching climate change less as a "matter of fact" and more as a "matter of concern." Latour argues that critical scholars may be fighting the last war, by deconstructing the reality of matters of fact when conspiracy theorists and others are doing so much more effectively and popularly. Latour worries that "the danger would no longer be coming from an excessive confidence in ideological arguments posturing as matters of fact—as we have learned to combat so efficiently in the past—but from an excessive distrust of good matters of fact disguised as bad ideological biases!" (2004, p.227). Latour chooses climate change as one of his examples. He cites the arguments of climate change skeptics who, as he himself has done, emphasize scientific uncertainty and the constructed nature of scientific argument. Latour fears that "dangerous extremists are using the very same argument of social construction to destroy hard-won evidence that could save our lives. … Why does it burn my tongue to say that global warming is a fact whether you like it or not? Why can't I simply say

that the argument is closed for good?" (p.227). Latour criticizes criticism for reserving its arsenal to be used against things that it doesn't care about: "We explain the objects we don't approve of by treating them as fetishes; we account for behaviors we don't like by discipline whose makeup we don't examine; and we concentrate our passionate interest on only those things that are for us worthwhile matters of concern" (p.241). Instead, Latour envisages a future in which

> the critic is not the one who debunks, but the one who assembles. The critic is not the one who lifts the rugs from under the feet of the naïve believers, but the one who offers the participants arenas in which to gather. The critic is not the one who alternates haphazardly between antifetishism and positivism like the drunk iconoclast drawn by Goya, but the one for whom, if something is constructed, then it means it is fragile and thus in great need of care and caution. (p.246)

Similarly, climate change campaigners are hard at work trying to construct an arena for public action on climate change. My purpose is not to undermine their efforts but rather to approach their creations with care and to ask what I can contribute to this assembly.

Climate Change Politics: Background

As shown in Table 1, the climate change debates occurring today are the latest in a long line of international discussions on the subject. The first international meeting to discuss climate change was held in Geneva in 1979. In 1988, another meeting was held, this time in Toronto. The Toronto Declaration asked countries to reduce their greenhouse gas emissions by 20% below 1988 levels by the year 2005

(Kay 1997). The meeting also issued a widely-cited statement that "humanity is conducting an unintended, uncontrolled, globally pervasive experiment whose ultimate consequences could be second only to a global nuclear war" (International Institute for Sustainable Development 1998, p. 19). Even more significant than the Toronto Conference was the foundation, also in 1988, of the Intergovernmental Panel on Climate Change (IPCC). The IPCC was founded at the behest of the World Meteorological Organization, then the science-based agency taking a leading role internationally for climate change issues. The IPCC was set up to assess the state of the art science on climate change from the world's scientists and to issue comprehensive "Assessment Reports" (IPCC 2001, 1995, 1990). These reports, which include both technical and policy-maker versions, are always major events in the climate change world because they are the presumed basis for international negotiations, though of course this has been challenged (see below). Thus far, the IPCC has issued assessment reports in 1990, 1995, and 2001. Their next report, due out in 2007, is already being eagerly anticipated in climate change circles.

Table 1. International climate change politics milestones, especially as pertains to Canada and Australia

YEAR	EVENT
1979	• First World Climate Conference, Geneva
1988	• World Conference on the Changing Atmosphere: Implications for Global Security, Toronto • Intergovernmental Panel on Climate Change (IPCC) established
1990	• IPCC issues First Assessment Report
1992	• UN Conference on Environment and Development, Rio de Janeiro ("Earth Summit") • United Nations Framework Convention on Climate Change (UNFCCC) negotiated
1994	• UNFCCC enters into force
1995	• First Convention of Parties to the UNFCCC, Berlin (CoP-1) • IPCC issues Second Assessment Report
1997	• Kyoto Protocol adopted (CoP-3)
2001	• IPCC issues Third Assessment Report • United States and Australia announce that they will not ratify the Kyoto Protocol
2002	• Canada ratifies the Kyoto Protocol
2004	• Russia ratifies the Kyoto Protocol, surpassing the threshold specified in the Kyoto Protocol of ratification by 55 countries accounting for 55% of developed country emissions
2005	• Kyoto Protocol enters into force • First Meeting of the Parties to the Kyoto Protocol (CoP/MoP-1) held in Montreal in conjunction with UNFCCC CoP-11

Adapted from UNFCCC 2004.

The intense international political negotiations that have characterized the issue of climate change really took off in 1992. 1992 is a red-letter date in environmental history because it was the year that the "Earth Summit" was held, a gathering of 172 countries in Rio de Janeiro, Brazil. The United Nations Framework Convention on Climate Change (UNFCCC) resulted from this meeting.[1] International conventions

[1] "Loosely defined, a 'Framework Convention' is an undertaking to set up a forum committed to certain objectives within which particular binding agreements will subsequently be developed in the form of 'Protocols'. Thus the FCCC contained no specific greenhouse-gas abatement undertakings, only an agreement to develop and possibly engage in such arrangements in future years; it did however set out

such as this one are first signed by countries, indicating their participation, and must then be ratified according to each country's political process. A convention enters into force when an agreed upon quorum of countries ratifies the agreement. The UNFCCC, then, entered into force two years after the Earth Summit, in 1994. Once it entered into force, the signatories began meeting, roughly every year, at "Conferences of the Parties" (CoPs). It was at the third Conference of the Parties (CoP-3), in Kyoto, Japan, that the signatories to the UNFCCC negotiated a Protocol stating how the goals of the UNFCCC would be met. The Kyoto Protocol contained several important principles (UNFCCC 1997). First, the Protocol contained the principle of "common but differentiated responsibility." This article refers to the equity principle that developed countries (listed in "Annex I") were historically responsible for current emissions and should thus take the lead in reducing emissions in the first phase of emissions reductions. After developed countries had led the way, developing countries would then also have to accept targets and timetables for emissions reductions although the details were left to future negotiations. A second important principle was that all the developed countries together would reduce their collective emissions by 5.2% below 1990 levels by 2008-2012 (Kay 1998, Environment Canada 2006). Each developed country also agreed to a specific national target. Canada's target is 6% below 1990 levels; Australia's target is 8% above 1990 levels (UNFCCC 1997). Finally, it was agreed that the Protocol would not enter into force until it was ratified by 55 countries totalling more than 55% of global emissions in 1990 from

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certain procedural matters concerning decision-making and so on. Many international agreements take this form." (Yearley Forthcoming, n.3).

Annex I countries. This meant that without the participation of the United States or Russia, the Protocol could never enter into force because together these two countries accounted for more than 45% of emissions (the United States was 33% and Russia 17% of Annex I emissions in 1990) (UNFCCC 2005).

It took eight years between CoP-3 and the Kyoto Protocol entering into force, in 2005. E.U. countries ratified in 2002. However, both the United States and Australia announced in 2001 that they would not ratify.[2] They cited two major objections to the Protocol. First, they argued that it was too expensive and damaging to their countries' economies. Second, they argued that it was ineffective and inequitable because large emitters such as China and India were not included.[3] In 2002, though, Canada did ratify, along with New Zealand and Japan. After major pressure, especially from the E.U., Russia ratified in 2005, thus triggering the 55% threshold and bringing the Kyoto Protocol into force. In 2005, Canada hosted the first Meeting of the Parties to the Kyoto Protocol (MoP-1) in conjunction with the UNFCCC's CoP-11. Canadian and Australian participation in international climate change politics is discussed further in Chapter 2.

Climate Change in the STS Literature

[2] Croatia is the only other Annex I country that has not ratified the Kyoto Protocol.
[3] China and India have substantial emissions overall, though low emissions per capita. In contrast, Canada and Australia have relatively low emissions in real terms but very high emissions per capita (Baumert et al. 2005).

Needless to say, this flurry of activity on climate change politics and science has been matched by a great deal of scholarly interest in the subject. In particular, because of the prominent role of science, climate change is an emerging area of focus in STS (Yearley Forthcoming). Much of this work falls into three general areas: climate models, the IPCC, and media studies.

Models are a major subject for analysis because, as Paul N. Edwards has argued, "knowledge of climate change, in the contemporary sense of the term, comes only from science; in Bruno Latour's phrase, climate modeling has become an 'obligatory passage point' for knowledge of climate change" (Edwards 2001, p.33). Prior to the late 1960s and early 1970s, in contrast, representations of climate were primarily local records of weather. Edwards explains that computer models can only be calibrated for fit to empirical observations (called "paramaterization") by using atmospheric data, such as those collected by satellites. Edwards turns the well-known observation that data are theory-laden on its head by arguing that global climate models are data-laden. That is, data is inputted into models not only to generate results but also to construct the model in the first place. This data, however, is not a "pure" source of information against which to compare models. Satellite data, the most expansive and reliable form of climate data, "provide only proxy measurements of temperature; these may be distorted by optical effects" (p.61). Thus the datasets are created using still other models:

> Statistical models filter out 'signals' from noise; models of atmospheric structure and chemistry are used to disaggregate radiances detected at the top of the atmosphere into their sources in the various atmospheric layers and chemical constituents below. In addition, models are used to

> 'grid' the data and to combine them with other data sources. . . . Thus the twice-daily periods of actual observation are transformed into twenty-four-hour data sets by computer models." (p.62)

Despite the use of proxies and the layering of one representation atop others, without climate models "we would know little if anything about the causes and possible future consequences of climate change" (p.64). In addition, models are necessary to make and evaluate policy choices. Thus, for example, Van der Sluijs and his colleagues have argued that the modelling has consistently predicted for two decades a rise in the Earth's average temperature of 1.5°C-4.5°C, despite an enormous growth in this scientific field. They explained this paragraph with reference to the sociology of this community of modellers (Van der Sluijs et al. 1998). Similarly, through an ethnography of computer modellers, Lahsen examined how the models gained credibility (2005).

A second major area of STS work on climate change focusses on the IPCC. Studies examine the IPCC as a novel organizational form for science relevant to policy (Boehmer-Christiansen 1994, Shackley 1997, Miller 2001). Others explore the role of social sciences, especially economics, in the IPCC's efforts to predict the impacts of climate change (Rayner and Malone 1998). Still others focus on the inability of the IPCC to close down controversy and create consensus (Nolin 1999; McCright and Dunlap 2000, 2003).

Third, numerous studies have examined climate change science in the media. Some have chronicled the attention cycles to climate change in different countries (Trumbo 1996, Weingart et al. 2000), and also the extent to which media reports have

captured subtleties like the extent of uncertainty in scientific research (Zehr 2000). Still other studies have compared climate change to other environmental issues, such as the ozone hole, in terms of the difficulty that journalists have had in understanding and explaining the problem (Ungar 2000, Grundmann 2006). However, these studies seem to beg the question that they are trying to answer. It is not that climate change is inherently more difficult to understand than the ozone hole because there are a wide variety of ways of framing the problem in order to make it visible and salient. Rather, the question is who is undertaking this work of framing, why, how, and to what ends. It is precisely these questions that I will address by focussing on climate change campaigns. Indeed, the very purpose of many of these campaigns is to conceptualize climate change in such a way that the public will be persuaded to participate. As such, my study draws more on work examining science and politics, and less on STS work on climate change models, the IPCC, and the media.

Science and Politics in the STS Literature

The relationship between science and politics has been at the heart of the field of Science and Technology Studies (STS) since its inception. Indeed, STS has made it difficult even to pose the question in this way. To ask how "science" relates to "politics" presupposes that they are two independent entities that exist in the world and that can interact with one another, in the same way that we might ask about the

relationship between cars and buses on the road. STS has shed new light on how these categories are created and maintained. As we will see, however, STS has until recently been more focussed on what traditionally has counted as science and less so on the traditional category of politics.

One of the seminal works on science and politics was Shapin and Schaffer's *Leviathan and the Air Pump*, published in 1985. Shapin and Schaffer examined a significant moment in the history of science and politics, in which the modern meaning of these categories began to take hold. Specifically, they explored a controversy between Boyle and Hobbes over the role of experiment in generating knowledge. Shapin and Schaffer argued that, in previous history of science scholarship, the success of Boyle's experimental program was taken at face value as itself the *cause* of that very success. Instead, Shapin and Schaffer suggested that "solutions to the problem of knowledge are embedded within practical solutions to the problem of social order, and that different practical solutions to the problem of social order encapsulate contrasting practical solutions to the problem of knowledge. *That* is what the Hobbes-Boyle controversies were about" (1985, p.15). Both Boyle and Hobbes were interested in an important debate of the Restoration: how could social order be achieved? The Royal Society aimed to provide both a model and a mirror for the Restoration; the experimental philosophers would "mobilize consensus by separating matters of fact from political discussion" (p.153). Boyle and Hobbes, then, offered visions of different political forms of life. Through their study, Shapin and Schaffer attempted to go beyond earlier history of science debates over whether the

content of science should be explained using factors "internal" to science or instead using "external" forces. Shapin and Schaffer try to transcend this dichotomy by concluding that "knowledge, as much as the state, is the product of human actions" (p.344).

In much of his work, but perhaps most systematically in *We Have Never Been Modern* (1993), Bruno Latour offered his own view of the relationship between science and politics. He takes as one of his starting points a positive appraisal but also a critique of the work of Shapin and Schaffer. Latour cites Shapin and Schaffer's statement that "we have not referred to politics as something that happens solely outside of science and which can, so to speak, press in upon it. … The language that transports politics outside of science is precisely what we need to understand and explain" (Shapin and Schaffer 1985, p.342). Latour argues that to make this distinction between science and politics, or nature and culture, is a characteristically "modern" purification that denies that our world is populated by hybrids of nature and culture, humans and non-humans. According to Latour, "modern" Western scholars were only able to perceive this hybridity when examining "premodern" societies, such as in anthropological studies. Instead, Latour argues that, through the work of translation, actors build networks that are hybrids across varieties of scales and that include both actors and non-human actants (see also Latour 1987, 1988). From this perspective, then, Latour criticizes Shapin and Schaffer for not carrying their work to its logical conclusion. Latour accuses Shapin and Schaffer of being asymmetrical in showing the networks that are used to make Boyle's science but not Hobbes' politics.

He writes, "they [Shapin and Schaffer] seem to believe that a society 'up there' actually exists, and that it accounts for the failure of Hobbes's programme" (Latour 1993, p.26). Latour concludes that "if nature and epistemology are not made up of transhistoric entities, then neither are history and sociology - unless one adopts some authors' asymmetrical posture and agrees to be simultaneously constructivist where nature is concerned and realist where society is concerned" (p.27). Furthermore, it is Hobbes himself, according to Latour, who along with Boyle invented our modern conception of science and politics as realms purified from one another.

Over a decade later, Sheila Jasanoff attempted another synthetic and theoretical approach to science and politics. Like Latour, she hoped that her framework could become an umbrella and an orientation for much of STS work. She calls this approach "co-production," and we can understand what she means by this by first distinguishing her approach from Latour's in *We Have Never Been Modern*. Jasanoff treats Latour's work in much the same way that Latour treated Shapin and Schaffer: as a ground-breaking precedent that pointed towards the significant issues without actually carrying them through to fruition. Thus Jasanoff credits Latour with first formally introducing the term co-production in *We Have Never Been Modern*. She praises Latour for not "presuppos[ing] any *a priori* demarcations of the world before that world is worked upon by human imagination and labor" (Jasanoff 2004b, p.22). In Latour's words, "Society, as we now know, is no less constructed than Nature" (Latour 1993, p.94). However, Jasanoff argues that

> while all this is exceptionally rich and provocative, Latour's networks exercise power while displaying curiously little of the moral and

> political conflicts that normally accompany the creation and maintenance of systems of governance … when actor-network theory confronts the nature of power, as it often does, it side-steps the very questions about people, institutions, ideas and preferences that are of greatest political concern. (Jasanoff 2004b, p.23)

Jasanoff, then, develops her co-productionist orientation to explain science and technology as both constitutive of and constituted by pressing political considerations of particular places and times. What is co-production? Jasanoff defines it as "shorthand for the proposition that the ways in which we know and represent the world (both nature and society) are inseparable form the ways in which we choose to live in it" (2004a, p.2). She calls co-production not an all-encompassing theory but rather an "idiom" that "stresses the constant intertwining of the cognitive, the material, the social and the normative" (p.6).

The three approaches that I have discussed thus far are representative of different STS schools. Shapin and Schaffer were founders of the Sociology of Scientific Knowledge (SSK) school (see also Barnes 1974, Bloor 1976) and Latour of Actor Network Theory (ANT) (see also Callon and Law 1982, Callon 1986, Law 1987). Jasanoff's work on co-production was more synthetic and has yet to gain a large following, perhaps in part because it is much newer. However, she too is trying to establish an encompassing research program for STS. In the chapters to follow, I take as premises many of the assumptions of SSK, ANT, and co-production. Although strong proponents of these schools may consider them to be mutually exclusive, I have found them all to be useful theoretical foundations for my own work. In keeping with SSK, I have not presumed the truth of climate change science to be

the cause of its success as a scientific theory (assuming it is not premature to declare such a controversial science a success). However, climate change science itself is not my object of study, and my work is thus not a study, sociological or otherwise, of scientific *knowledge*. I accept the ANT premise that our world is populated by nature/culture hybrids and find this formulation particularly useful for understanding environmentalism, which is directly concerned with "nature" (and culture). Like Jasanoff, though, I depart from ANT by focussing my greatest attention on "questions about people, institutions, ideas and preferences that are of greatest political concern" (Jasanoff 2004b, p.23). My study is closest to the co-productionist idiom. I show how forms of knowledge in campaigns are co-produced with visions of society, and, in the case of social science, vice versa as well. I do not adopt the language of co-production because the construction of nature and society is not my primary concern; nevertheless, to use Jasanoff's term, my study is a work in that "idiom." My particular focus, though, is on a specific sub-branch of science in the public sphere, often known by its unfortunate acronym "PUS" (Public Understanding of Science).

Public Understanding of Science

The sub-field of public understanding of science has taken the question of science and politics in a decidedly empirical direction, by examining the contact that lay people have (or have not) had with science. The original approach to public

understanding of science, now often called by its critics the "deficit model," assumed that the public was ignorant about science and should learn more (Royal Society 1985, Durant et al. 1989, National Science Board 1990, Ziman 1991; cf. Wynne 1995, Sturgis and Allum 2004). In the deficit model, there is a one-way communication between scientific experts, who tell the public what they need to know, and the public. The public's participation is confined to "politics" not to "science" itself, to questions such as: should we use nuclear science to develop weapons, or not. This deficit model was the standard one in most policy and academic circles until about ten years ago. Beginning in the 1990s, sociologists and others began criticizing the deficit model. These scholars argued that the public can and should speak back to science, that there should be a two-way communication (e.g. Wynne 1991, 1992b; Irwin 1995; Irwin and Wynne 1996; Michael 2002; Irwin and Michael 2003; Hagendijk 2004; Irwin 2006). In one classic study done by Brian Wynne, sheep farmers in Northern England disagreed with the scientific experts over farm safety after the Chernobyl disaster (1992b, 1996). Wynne showed that the scientific experts ignored farmers' specialized local knowledge of both farming and social practices in their community. In this case, the farmers' lay expertise came from their position in society; they were literally close to the content of their knowledge of local farming conditions. Other PUS studies have focussed on deliberate experiments to increase public participation (Rowe and Frewer 2005). These public engagement exercises have included citizens' juries (Rowe and Frewer 2000, McIver 1998), consensus conferences (Einsiedel et al. 2001, Joss and Durant 1995), and public workshops (Irwin 2006).

Sheila Jasanoff has developed an alternative framework to public understanding of science, which she calls "civic epistemologies." She defined civic epistemologies as "the institutionalized practices by which members of a given society test and deploy knowledge claims used as a basis for making collective choices" (Jasanoff 2005b, p. 255). The civic epistemologies framework provides a means to link together public participation in science-related issues with a broader comparison of different national political cultures. As such, the civic epistemologies approach broadens the traditionally local focus of many "public understanding of science" studies (e.g. Irwin and Wynne 1996). Furthermore, Jasanoff's approach "redresses some of the obvious weaknesses of PUS's 'deficit model' of the modern citizen, but without setting up in its place an equally problematic model of lay wisdom" (Jasanoff 2005b, p.270).[4]

Who Is the Public?

It is probably too easy to say that one of the limitations of this field is the interpretation of its key terms: "public," "understanding," and "science." I am not arguing that it is possible or even desirable to define any term unambiguously. In the case of PUS, though, the terms "public," "understanding," and "science" have at times obscured important differences between widely divergent categories. In this section, I

[4] This criticism has also been made by Michael, who cautioned against the dangers of romanticizing the "lay local" as a "site of a happy common and coherent consent" (1998, p.314).

will explore the concept of the public and then turn to questions of understanding and science in the next section.

Limitations of PUS: The Changing Face of the Public

Who is the public? From the point of view of this question, we can now see the previous discussion of the deficit model, critical model, and civic epistemologies approaches in a new light. Each approach makes different assumptions about who the public is. In the deficit model, the public is usually an undifferentiated mass. This is the public that is surveyed in large quantitative studies, which may measure individuals' knowledge of particular bits of scientific knowledge. Michael has called this "science-in-particular" (1992). Surveys have the ability to distinguish between different groups within the "public"; for example, they could correlate level of education with knowledge of scientific facts. Yet by their very nature, such surveys reify and homogenize the public by placing it into a category of people whose knowledge or ignorance is in question. Furthermore, the nature of the quantitative survey is such that it is addressed towards a representative sample of the population. In contrast, the critical model tries to gain a deeper understanding of people within their social context. We are left, then, with an impression of the public as made up of specific groups of lay people, such as sheep farmers, each with their own lay expertise or "wisdom." The public is once again different in the civic epistemologies approach.

Because it examines national political cultures, civic epistemology treats the public as citizens of a nation who share common traditions of knowing and acting.

We can also see these different views of the public empirically. To take one example, a campaigner from the One-Tonne Challenge described her audience at three levels of analysis that mirror the perspectives of the deficit, critical, and civic epistemologies approaches. When she says that she is making her writing "gen pop friendly" (understandable by the general population), she is referring to the mass public. She also describes the public in terms of specific socio-economic groups, such as those who "drive an SUV and they live in a huge house or whatever and crank their heat or their air conditioning." When explaining why her campaign materials include a maple leaf, she sees the public in terms of national culture: "people also wanted to know that this is a Canadian challenge and we know that Canadians respond well, they have national pride." Both analytically and empirically, then, the nature of the public cannot be presumed in advance.

The Public as Campaigners and Audiences

In this study, I have approached the public from two different levels of analysis. First, I examine climate change campaigners as members of the public in both the critical PUS and civic epistemologies senses. As we will see, campaigners are lay people with regards to climate change science, and lay experts or simply experts with regards to the social science that they incorporate into their campaigns.

Along with these epistemological considerations, my goal is to place campaigners in their institutional, political, and national contexts. As such, I treat campaigners as members of the public, but also as participants in social movement organizations, in government institutions, and in particular nations. Thus although I address questions central to the field of public understanding of science, my work will draw more heavily on research traditions in science and social movements, and science and the state.

Studies of science in social movements have shown that engagement with science is not only the result of individual cognitive efforts. Understanding of science can be the result of deliberate, organized efforts on the part of movement activists. For example, in Steven Epstein's study of the AIDS movement, activists acquired understanding of existing medical knowledge and engaged with it to the point of making substantive changes to the conduct of AIDS research (1996). They did so in the context of a social movement mobilized around a crisis for their constituents. Similarly, campaigners in non-government organizations engage with science as part of a broader pattern of political action in the environmental movement. My study will thus build on analyses of the environmental movement (Wapner 1996, Hutton 1999, Doyle 2000, Yearley 2005) and science in social movements (Brown 1992, 1997; Epstein 1995, 1996, 2003; Yearley 1996; Rabeharisoa and Callon 2002; Callon and Rabeharisoa 2003; Parthasarathy 2003).

I also study campaigners from government organizations. They too can be seen as "publics" in terms of their engagement with science, especially climate change

science. Nevertheless, their work must fundamentally be seen in the context of their role in governance. Science, social science, and quantification, all of which are important to campaigners, have also played a significant role in the modern state. As such, I draw on previous studies of science and the state (Curtis 2001; Rose 1999; Porter 1995; Foucault 1991; Hacking 1990; Jasanoff 1990, 2005b; Jasanoff and Martello 2004; Ezrahi 1990; Mukerji 1989, Rose and Blume 2003). Environmental governance, in particular, has had an essential involvement with science (Darier 1998, Hajer 1995, Jasanoff and Martello 2004).

As we will see, though, government and non-government campaigners share many common concerns and practices, especially with regards to science. We will see this in part through the national comparison. At times, campaigners from different types of institutions have more in common with their fellow Canadians or Australians than with their fellow government or non-government organizations. As such, I will also be able to address civic epistemological concerns about cultural approaches to the appropriate relationships between science and politics.

The second sense in which I approach the "public" is as the audience for the campaigns. The goal of the campaigns is to persuade this "public" to take action on climate change. Campaigners are a significant group to study, not just on their own merit, but because they are responsible for creating public discourse around climate change. Their efforts relate to the classic sociological question about the relationship between interests and ideas. As Raymond Aron argued in his commentary on Weber, the contrast between explanation by interests and explanation by ideas is meaningless

because ideas govern everyone's interests (1967, p.218). Aron asked rhetorically, "What is of greater interest to a Calvinist than to discover signs of his election?" (1967, p.218). Weber himself wrote, "Not ideas, but material and ideal interests, directly govern men's conduct. Yet very frequently the 'world images' that have been created by 'ideas' have, like switchmen, determined the tracks along which action has been pushed by the dynamic of interest" (Weber 1946, p. 280). But where do these "world images" come from? Who creates them and who are the switchmen? This is but another way of expressing the campaigners' goals: to develop new ideas and images that can push interests along a different track. Or, to use Melucci's terminology, campaigners seek to create new cultural codes (1996). At least in the case of climate change, they have not yet achieved the change in world images that they desire. The concept of framing can help us to conceptualize how campaigners impact their audiences.

Frames Linking Campaigners and Audiences

The term framing, in the sociological tradition, originates in the work of Erving Goffman. Goffman described frames as "schemata of interpretation," through which individuals can interpret, understand, and act upon their everyday lives (Goffman 1986, p.21). In the social movements literature, the term framing was applied to more collective experiences. In particular, the constructionist approach to social movements emphasizes the creation of shared meaning through interactive

processes. According to this approach, participation in social movements occurs when there is a "linkage of individual and SMO interpretive orientations" (Snow et al. 1986, p.464). This "frame alignment" is "a necessary condition for movement participation" (p.464). When this frame alignment occurs, a collective action frame has been constructed. Collective action frames "are not merely aggregations of individual attitudes and perceptions but also the outcome of negotiating shared meaning" (Gamson 1992, p.111).

The concept of collective action frames can be used in either a cognitive or a strategic sense. Following Goffman, collective action frames are cognitive in the sense that they represent a common interpretation and view of the world (Goffman 1986, Johnston 1995). In contrast, many social movements scholars see collective action frames as a strategic tool that movements must develop. McAdam, McCarthy, and Zald exemplify this instrumental approach when they define framing "rather narrowly as referring to the *conscious strategic efforts by groups of people to fashion shared understandings of the world and of themselves that legitimate and motivate collective action*" (McAdam et al. 1996, p.6). Frames are no longer cognitive schemata of interpretation but rather conscious strategy decisions by movement participants. For these authors, there are five components of a frame analysis: "the *cultural tool kits* available to would-be insurgents" (p.19); "the *strategic framing efforts* of movement groups" (p.19); "the *frame contests* between the movement and other collective actions – principally the state, and countermovement groups" (p.19);

"the *structure and role of the media* in mediating such contests" (p.19); and "the *cultural impact* of the movement in modifying the available tool kit" (p.19).

Framing provides both a useful conceptual tool and a useful analogy for the work of the campaigners described here. Campaigners' views of climate change, their cognitive schemata of interpretation, are part of how they themselves make sense of this issue. At the same time, the campaigners strategically try to frame the problem of climate change in such a way that the public will want to take action. Framing also provides a way of conceptualizing the relationship between campaigners and their audiences. Campaigners' own interpretation of climate change affects how they design their campaigns, but they also try to predict and influence their audiences' understandings of the issue. Campaigners are thus trying to be like Weber's "switchmen," moving interests along the tracks of their new ideas, but they rely on knowledge of the public in order to be successful.

Knowledge and Action

The second limitation of PUS is with regards to the last two parts of its acronym: understanding and science. We do not want to determine a priori that the most important matter of concern is science and that the most important action is understanding. In the case of climate change, campaigners are less interested in understanding scientific truths and more interested in finding knowledge that is useful

for their goals. Furthermore, campaigners use their knowledge to determine, at least in part, the extent and type of participation for their audiences. This section will discuss how the concept of "configuring the user" can shed light on this complex relationship.

Limitations of PUS: What Is Understanding and Science?

Recently the issue of knowledge in the public sphere was the subject of a heated debate in the pages of the journal *Social Studies of Science*. The debate began when Collins and Evans published a lengthy proposal called the "Third Wave of Science Studies" (2002). Collins and Evans describe the increasing push to include public participation in "technical decisions in the public domain" (2002, p.235), in order to increase the legitimacy of the resulting decisions. They argue, though, that this "'Problem of Legitimacy' has been replaced by the 'Problem of Extension' – that is, by a tendency to dissolve the boundary between experts and the public so that there are no longer any grounds for limiting the indefinite extension of technical decision-making rights" (p.235). In other words, if STS has showed that scientists have no special access to the Truth, then why should scientists' advice be particularly valued? Collins and Evans propose to start a new phase of science studies (the third wave) which will focus on "studies of expertise and experience." (They define the first wave as pre-Kuhnian naïve realism, and the second wave as post-Kuhnian, mainly SSK. They plan to continue the break with the first wave and build on the second wave).

What do they mean by "expertise and experience"? Collins and Evans propose to draw the former boundary between science and the public in a new way.

> We say that those referred to by some other analysts as 'lay experts' are just plain 'experts' – albeit their expertise has not been recognized by certification; crucially, they are not spread throughout the population, but are found in small specialist groups. Instead of using the oxymoron, we will refer to members of the public who have special technical expertise in virtue of experience that is not recognized by degrees or other certificates as 'experience-based experts.' (p.238)

Their approach, then, has a dual focus on expertise and experience. As they put it, "crucially, under Wave One, the dividing line was horizontal, separating the certified scientific community from the laity; under Wave Three it is vertical, separating specialist experts, whether certified or not, from non-specialists, whether certified or not" (p.250-1). In addition to their effort to include lay experts (or "non-certified" "experience-based experts") within the realm of expertise, they also classify expertise into three categories: no expertise, interactional expertise ("enough expertise to interact interestingly with participants" (p.254)), and contributory expertise ("expertise to contribute to the science of the field being analysed" (p.254)). As well, they describe different types of sciences ("normal science," "Golem science," "historical science," and "reflexive historical science") with different appropriate amounts of involvement for the lay public.

Collins and Evans' Third Wave proposal received a great deal of interest but also a great deal of criticism. Both Jasanoff and Wynne argued that Collins and Evans misunderstood the public sphere by assuming that it is primarily organized around epistemological questions. In her rebuttal, Jasanoff wrote,

> The project of looking at the place of expertise in the public domain appears in this light as a project in political (more particularly democratic) theory, with epistemological questions embedded in it, but not wholly reducible to epistemology. All this makes the kinds of distinctions that [Collins and Evans] try to draw between the scientific and political phases of decision-making (262, 276) seem at best naive and at worst misguided. To label some aspects of society's responses to uncertainty 'political' and some others 'scientific' makes little sense when the very contours of what is certain or uncertain in policy domains get established through intense and intimate science–society negotiations. (Jasanoff 2003a, p.394)

Similarly, one of Wynne's central criticisms is that Collins and Evans assume that public debate is about finding answers to propositional questions such as "Is British beef safe to eat?". Wynne takes issue with "their assumption that public issues in which scientific knowledge is involved are only about propositional questions (the ostensible currency of science), for example about risks, and not also about public meanings (thus inter alia about which propositional questions [and knowledges] are salient anyway)" (Wynne 2003, p.402). In consequence, he argues that the true problem of legitimacy is "not a legitimacy crisis caused only by the exclusion of unrecognized but legitimate forms of expertise from propositional negotiations about consequences. It is a legitimacy problem caused more by the undemocratic imposition of assumed meanings on the issue, and on the public, through the institutional scientific culture" (Wynne 2003, p.412).[5]

These criticisms of Collins and Evans' "third wave" also apply more broadly to the concept of public understanding of science. We will see that questions of understanding are peripheral to campaigners' main "matters of concern." As Jasanoff

[5] Collins and Evans dispute Wynne's claim about the propositional nature of their argument (Collins and Evans 2003).

and Wynne argued, propositional questions about truth do not provide a very complete representation of public debate. In the case of climate change campaigns, as we will see in later chapters, campaigners ask of knowledge not "is it true?" but rather "is it useful?". Campaigners believe climate change science to be true, but they are not sure if it is useful for convincing the public to take action (Chapter 3). Instead, they turn to the social science of social marketing, which addresses directly the question of how to foster cultural change (Chapter 4). They are thus involved with multiple sciences, with different relationships to these sciences for both themselves and their audiences. As we will see, knowledge and participation go together when the science is natural science but are separated when campaigners use social science. Understanding, then, does not automatically create participation, and participation is not necessarily premised on understanding. In addition, focussing on understanding and science obscures the significant political question of "what is the public to do?". Climate change campaigns recommend particular actions for the public to take and ask different parties in society to take responsibility for the environment (Chapter 7). The concept of "configuring the user" provides a means of linking together useful knowledge and action.

Configuring the User

Steve Woolgar wrote a classic article on configuring the user in 1991, drawing on his ethnographic research of the design of a new type of personal computer.

Woolgar argued that designers are both trying to learn about the character of users and at the same time trying to control (or "configure") the parameters of the users' interactions with the technology. Woolgar characterizes this as a process of boundary work: "Insiders know the machine, whereas users have a configured relationship to it, such that only certain forms of access/use are encouraged. This never guarantees that some users will not find unexpected and uninvited uses for the machine. But such behaviour will be categorised as bizarre, foreign, perhaps typical of mere users" (Woolgar 1991, p.89). Woolgar thus makes the significant point that designers do not only design their product but also to a certain extent the ways in which users will be able to work with that product. Following on this work, Rose and Blume expanded the concept of "configuring the user" to the state (2003). They argued that while the work of configuring the user may begin in the laboratory, it does not end there. The state plays a significant role in how users are configured once the products are set loose on the world. Rose and Blume take vaccines as their case study. They provide several examples of how the state built certain expectations about the proper use of vaccinations into their dissemination of this medical technology. Rose and Blume thus connect the user following his or her configuration with the obligation to be a good citizen:

> When citizens use certain technologies--or use them in certain, specified ways--they fit with their configurations and follow the technologies' scripts. In other words, they actualize their potential as 'good' citizens. Of course, moral and social sanctions can follow for those who choose not to use certain technologies--or use them in ways other than prescribed. In these cases, it may very well be that individuals not only become inappropriate users of technologies, they also fail in their civic responsibilities to use them, or to use them

> appropriately; that is, they become 'bad' citizens. What is at stake, then, is no less than what it means (and what it takes) to be a good citizen of the state itself. (p.109)

Rose and Blume, then, expand on Woolgar's claim that use of a technology outside of its configuration will be considered inappropriate. In addition, Rose and Blume note that this process is not unidirectional. Users "also configure themselves through their actions as users or purposive action as non-users" (p.124).

The configuring the user "frame" is another way of conceptualizing the relationship between campaigners and their audience. Campaigners are like designers, in that they develop new technologies or new ways of using existing technologies. For example, there are technologies such as energy efficient appliances, psychological techniques, emissions calculators, and prescribed behaviours such as walking instead of driving. Furthermore, those who follow these "scripts" are, like Rose and Blume's vaccine recipients, configured as good citizens contributing to the public good. As well, there is the possibility for users to resist their configuration by not following the designers' scripts. Although Rose and Blume do not mention this aspect of resistance, we can also see that the visibility of resistance depends on the channels that the designers leave open for the users to speak back to them, usually through the measurement of results. This analysis would likely apply both to their study and my own. Although the language of designers, technologies, and users can be made to fit to my case study, I have chosen not to do so. These terms are unnecessarily narrow for a study that seeks to cut to the heart of political and scientific discourse and action.

However, the concept of configuring the user does provide a model for how to link knowledge, the achievement of specific goals, and public participation.

Arguments and Overview

The concepts of framing and configuring the user are important for conceptualizing the empirical and theoretical arguments of this study. I show that campaigners' engagement with science is inseparable from their epistemological, institutional, and national contexts. Campaigners use natural and social science, and technologies of quantification to motivate the public to take action on climate change. Their uses of science and numbers represent different ways of framing the problem they are trying to solve; they also represent different configurations for the public's participation in the campaigns. The public, then, is not only the audience for the campaigns; it is also an outcome of campaign design. Indeed, the public comes into being through the work that campaigners do to imagine and shape their audiences. Furthermore, I demonstrate that campaigners' uses of science and numbers are oriented not only to their audiences but also to the concerns of their own organizations, of their government or non-government counterparts, and of their national political leaders. Finally, campaigners' epistemological, institutional, and national considerations influence how they attribute responsibility for environmental protection. I argue that campaigners operate under different models of the relationship

between individuals, non-government organizations, and governments; these models affect the form and content of public participation. This study thus emphasizes the interconnection of ways of knowing, political actions, and forms of public participation.

Chapter Outline

I conclude by providing an outline of the chapters to come. Chapter 2 presents my comparative methodology. I begin by describing the nature of my comparison as an interpretive, social worlds analysis. I then discuss the axes of my comparison: government and non-government, Canada and Australia. I explain the rationale for these comparisons, and review some of the relevant secondary sources in these areas. I then profile the four main case studies: a government office and non-government organization in each of Canada and Australia. I outline the history and aims of these institutions' climate change campaigns. Finally, I describe my multifaceted methodology of participant observation, interviews, and document analysis.

In Chapter 3, I examine how campaigners use climate change science to motivate the public to take action. I show how campaigners try to make climate change visible to the public by presenting pieces of scientific data. They also try to motivate the public by highlighting scientific predictions about the negative impacts of climate change. I argue that campaigners use climate change science to enhance their credibility and because they themselves found it motivational. However, I show that

this form of science plays a marginal role because campaigners are beginning to doubt its motivational power.

As I discuss in Chapter 4, campaigners are instead turning to the social science of social marketing as their central method of motivating the public to take action. This is a science where the impact on motivation is direct, rather than indirect as with climate change science, for it is a social science of social change. Furthermore, unlike in the case of the natural science of climate change, with social science the knowledge of campaigners is fundamentally different from the knowledge of the public. The social science-based strategies used and developed by campaigners are supposed to move the public to action by operating without the public's knowledge.

Chapter 5, on quantification, serves as a bridge between the previous two and the following two chapters. Chapter 5 explores the significance of the predominance of numbers in the campaigns. In one sense, the numbers are residual from the natural and social sciences discussed in Chapters 3 and 4. From climate change science, the campaigns retain numbers such as tonnes of greenhouse gases emissions. Social marketing instructs the campaigners to measure the effectiveness of their campaigning techniques. Campaign numbers have not only varying origins but varying purposes. I argue that campaigners use to numbers to lobby, to enhance legitimacy, and as part of their identity. There are institutional and national differences, however, in these uses of quantification. I then turn to numbers that are primarily for the public's use, rather than for campaigners' own uses. I show how these numbers encourage participants to self-govern according to the campaigns' normative goals.

In Chapter 6, I revisit the themes of lobbying (especially over policy), legitimacy, and identity in terms of government and non-government relations. I argue that the government and non-government groups converge and diverge in the areas of policy, legitimacy, and identity. The non-government groups lobby the government over policy differences but converge with the government campaigns in their uses of science and their recommendations for individual, personal actions on climate change. Depending on the audience and the occasion, the governments and non-government groups seek legitimacy both by allying together and by distancing themselves from one another. Finally, the campaigners assert identities that distinguish themselves from each other, but they also promote a sustainable consumer identity that they hope to broaden to each other and to all of us. I argue that this convergence and divergence can be explained due to institutional arrangements within the organizations and due to the different audiences to whom campaigners speak.

In Chapter 7, I examine who, according to the campaigns, is responsible for action on climate change. I argue that there are two competing visions of responsibility at work in the campaigns. According to the model of public responsibility, governments should lead by regulating industry, and individuals and non-government groups should lobby government to fulfill this duty. In contrast, under the model of private responsibility, individuals should lead by undertaking personal actions in their own lives. Industry, non-government groups, and governments can all play a supporting and facilitating role to the efforts of individuals. There are elements of both public and private responsibility in all the climate change

campaigns profiled here. However, the government campaigns have tended to embrace private responsibility; private and public responsibility are more mixed in the non-government campaigns, and there is a debate among some non-government campaigners over which model should gain prominence. In addition, the Australian campaigns, given their more difficult institutional and national circumstances, lean more towards private responsibility. Finally, I show how public and private responsibility are linked to particular forms of knowledge.

In Chapter 8, I conclude by examining the implications of these findings for public participation in science-related politics. I discuss the empirical and theoretical findings of this research and ask what lessons they might hold for the practices of climate change campaigning. Finally, I look to the avenues left open for future research and explore what the future of climate change politics might hold.

CHAPTER 2

CASES AND METHODS

Introduction

This chapter describes my comparative methodology. I begin by introducing the axes of comparison of this study: Canada and Australia, government and non-government. I review the rationales, the characteristics, and the nature of these comparisons. I profile the four main cases that form the core of the study: a government and non-government organization from each of Canada and Australia. Finally, I conclude by outlining my three methodological approaches: participant observation, interviews, and document analysis.

The Axes of Comparison

As discussed in Chapter 1, this study examined three interconnected research questions. What is the role of science in climate change campaigns? How does the type of institution, government or non-government, affect the campaigns, especially with regards to the use of science? Finally, what is the effect of being a party to the Kyoto Protocol, especially as relates to the previous two questions? The two major

axes of comparison, then, are institutional and national. I begin by outlining the rationale behind the comparison of government and non-government campaigns. I then propose two reasons for comparing Canada and Australia: their divergent policies over the Kyoto Protocol, and the opportunity to approach their campaigns as somewhat of a "stranger."

Government and Non-Government Campaigns

I compared specifically environment groups and government campaigns because they are the major organizations running climate change campaigns aimed at the public. Furthermore, because government and non-government groups seek to change perceptions of climate change, they are ideal sites for understanding how climate change is framed. Although businesses also aim to sway public opinion, their efforts in this regard are more limited than those of government and non-government groups. Their campaigns are also much more focussed on national and international policy rather than on individual behaviours. I have thus focussed my study on government and non-government groups, though industry also appears in a supporting role, especially through their interactions with my main case study groups.

Canada and Australia: Parting Ways over Kyoto

There were two central rationales for comparing Canada and Australia. First, these countries have significant similarities in their histories and polities, relationships with their environments, and approaches to climate change politics. Any differences in climate change campaigning, then, will stand out more starkly against this backdrop of commonality. To begin with the obvious historical and political parallels, both countries were colonized by European settlers and became British colonies. The early encounters between the European settlers and the Aboriginal peoples continue to play significant roles in the contemporary politics of both countries (Canada 1996b, Aboriginal and Torres Strait Islander Commission 1993). Canada and Australia are industrialized democracies that are strong allies of each other, of the U.S., and of the U.K., although the details of these relationships have shifted over time. In terms of their environmental histories, the early European settlers in both countries experienced their landscapes as hostile wildernesses that resisted human conquest (Seaton 1989, Hall and Shultis 1991). Even today, both countries have small populations (as of 2001, 31 million in Canada and 19 million in Australia) occupying among the largest land masses on Earth, with massive tracts of undeveloped land (Statistics Canada 2006, Australian Bureau of Statistics 2006). At the same time, both countries developed by exploiting natural resources and through agriculture, including fish, fur, and lumber in Canada (Innis 1930), and gold, wool, and coal in Australia (Maddock and McLean 1987). As well, the modern environmental movements in both countries have been marked by heated battles over conservation of wilderness. In Canada, the 1990s brought famous struggles to save British Columbia's Clayoquot Sound from logging

(McKenzie 2002, Draper and Reed 2005). In the late 1970s and early 1980s in Australia, environmentalists fought to save Tasmania's Franklin River from hydroelectric development (Hutton and Connors 1999, Doyle 2000). Of course, the environmental movements and environment ministries deal with many environmental issues that, like climate change, go beyond conservation of wilderness. As we will see, though, national natural icons still play a prominent role in environmental politics in each country (Chapter 3).

Turning more specifically to climate change, Canada and Australia started out playing similar roles internationally. They have, respectively, the second and first highest per capita emissions of greenhouse gases in the world (Litfin 2000, Turton 2004) although their share of global emissions is only a few percentage points each (2.0% from Canada and 1.5% from Australia) (Baumert et al. 2005). They are also both major exporters of fossil fuels, especially oil from Canada and coal from Australia. At the United Nations climate change negotiations, Canada and Australia were both members of the negotiating block "JUSCANZ," a group made up of Japan, the United States, Canada, Australia, and New Zealand (Leggett 1999). This group was later expanded to include other industrialized countries that were not part of the European Union's negotiating block, such as Norway, Iceland, Russia, and the Ukraine (Samson 2001). This so called "Umbrella Group" coordinated its negotiating positions to press for a treaty with low emissions reductions targets and large implementation loopholes. When it came time for ratification, however, the Umbrella Group split. After George W. Bush was elected, the United States announced in 2001

that it did not intend to ratify the Protocol. Later in 2001, Australia announced that it too would not ratify. Canada, however, ratified in December 2002.

Why this outcome? An entire book could be written on that subject, but that is not the subject of *this* book. However, domestic political considerations played a decisive role. In Canada, ratification was supported by 78% of Canadians, according to a 2002 opinion poll (Centre for Research and Information on Canada 2002); by the Liberal, NDP, and Bloc Québecois political parties; and by several provinces. Opposition to the treaty was led by the oil-rich province of Alberta, the oil industry, and the Conservative Party (Liftin 2000, Toner 2002, Canadian Press 2004). However, after they were elected in 2006, the Conservative Party toned down its opposition, stating that Canada would neither meet its Kyoto target nor pull out of the agreement (Curry 2006). In Australia, Kyoto ratification was supported by 71% of Australians (Greenpeace 2002) and by the Labor, Greens, and Democrats political parties. Opposition to ratification was led by the governing Liberal-National coalition government, supported by the coal and aluminum industries (Hudson and Miller 2005, AAP 2005).[6] Thus, although Canada overall leans more towards Kyoto than Australia, both countries are internally divided over the issue.

These sketches of history and politics cannot hope to do justice to the two nations' complexities. However, I include them to point to the background similarities against which we will be able to see the implications of the differing Kyoto ratification decision more clearly. In Sheila Jasanoff's words, "the comparative method works

[6] Aluminum companies are high energy users and are therefore significant producers of greenhouse gas emissions.

best when the entities to be compared are different enough to present interesting contrasts, yet similar enough for the variations to be disciplined" (2005b, p.29).

Canada and Australia: Becoming a Stranger

The second purpose of this comparison was to counter the effects of being quite familiar in a commonsensical way with the Canadian cases, being Canadian myself and having followed Canadian environmental politics informally for many years. Traditionally, ethnographers went to their field sites as "strangers" and could thus "engage in a willing suspension of belief in the subjects' commonsense world" (Traweek 1988, p.161). In her ethnography of the high energy physics community, Sharon Traweek demonstrated another method of seeing with the perspicacity of a stranger. Traweek focussed mainly on two high energy physics laboratories: one in the US, and one in Japan. Because she had been a tour guide at the American lab, she already knew many of the people who would later become her respondents. She was also familiar with many of the practices of the lab. By conducting ethnography in Japan as well, she was able to experience their lab as a stranger. Upon her return to the U.S., Traweek had the opportunity to see it once again from a "stranger's" viewpoint, before it became familiar once again.

Traweek's approach served as a methodological model. By interspersing my study of the Canadian government and Canadian non-government groups with my field work in Australia, I was able to see the Canadian cases from a new perspective

developed in Australia. As we will see, certain assumptions taken for granted in Australia were not present in Canada and vice versa. For example, I did not particularly take notice of the fact that the Canadian government campaign was not directly measuring emissions reductions that might result from their campaign, but only measuring awareness of their ads through telephone surveys. As I discuss in Chapter 5, both the government and non-government campaigns in Australia were strongly preoccupied with measuring abatement of emissions. This was an interesting finding in itself, but it also shed new light on what I had observed in Canada. These types of differences, and also similarities, became much more visible to me after the process of leaving and coming back.

The Nature of the Comparison

What kind of comparison is this? Even within sociology, there are different traditions regarding the goals and methods of comparative studies. One major approach uses comparisons to isolate variables that cause differences between cases. J. S. Mill is often looked to as the forefather of this approach (1950; see also Skocpol 1979, 1984). In Mill's "method of difference," if there are two cases in which all of the causal agents are the same except for one, and an outcome is present in one case but not in the other, then the causal agent present in only one of the cases is responsible for the differing outcome (1950, p.256-259). My approach may appear to

be a Millian comparison, making causal arguments regarding the variables of type of organization and national policy on Kyoto ratification. However, the data that I have collected cannot support these strong causal conclusions. I chose to seek depth over breadth, and thus I cannot be sure that the organizations that I selected are in any sense strongly representative. I am also skeptical about whether it is possible to make such claims without resorting to positivistic reductionism about the cases. Furthermore, I have not isolated clear-cut "variables" that are present or absent in each case. Although I compare along the axes of Canada and Australia, government and non-government, all of my cases are intertwined. Rather than being separable variables, the cases form part of a common social world.

Social worlds, according to a seminal definition cited by Anselm Strauss (1978), are defined as "a set of common or joint activities or concerns, bound together by a network of communication" (Kling and Gerson 1978, p.26). Strauss lists several elements that are typical of a particular social world and that should be examined for each case. These are universes of discourse, activities, memberships, sites, organizations, and technologies. Climate change campaigns fall well within this understanding of a social world, or rather a sub social world (SSW), a segment of the larger social world of environmental campaigning.[7] As we will see, campaigners share a common discourse on climate change, behaviour change, and climate change-

[7] Strauss comments that many sociologists have been, in his view, overly preoccupied with the boundaries of a social world. Certainly the same question arises for sub social worlds (SSWs), as well as the question of what "counts" as a full-fledged world as opposed to a segment of a world. However, the fact that these matters are not clear at the outset is not a serious problem for using this analytical framework. Strauss addresses the matter of boundaries empirically, as a question of concern to the worlds themselves.

friendly lifestyle "tips," such as walking instead of driving or buying energy efficient appliances. These similarities are not inevitable but rather are the product of the flows of communication through the SSW. How does this communication occur? First, campaigners are quite mobile within the world, switching between different organizations and thus communicating the practices from one organization to another within the world. Second, campaigners meet up at special events such as the UN climate change meetings. Third, campaigners read common publications that also lead to usage of similar discourses. Finally, they keep abreast of each others' campaigns.

While universes of discourse may be the most prominent aspect of a social world, Strauss cautions us not to ignore more "palpable matters" (1978, p.121), especially activities, memberships, sites, organizations, and technologies. These five factors are all intertwined in the world of climate change campaigning. Activities include creating publications and websites for the public, writing press releases, forming partnerships, giving presentations about the campaign, holding meetings, and executing other office work. Membership, as mentioned above, is overlapping as campaigners move between their different organizations. Campaigners also tend to come from very similar backgrounds, being almost uniformly white, middle class, and well-educated, as is typical for much of the mainstream environmental movement (Bayet 1994, De Rosa 1998). The sites and organizations are offices, both government and non-government; indeed, Strauss mentions that careers are often embedded within social worlds (1978, p.125). Finally, there are technologies that are common to this social world. In addition to typical office technologies, such as files

and computers, there are favoured climate change-related technologies: compact fluorescent light bulbs, energy saving appliances, hybrid cars, and many others. As we will see, campaigners also develop and employ behavioural and research technologies, such as psychological tools and public opinion polls (Chapter 4).

Why bother comparing at all, then, if not to make causal claims about differences? I consider this study to follow in a long sociological tradition of using comparisons to understand meaning-making processes. Max Weber famously described this as the goal of *verstehen*, or "understanding." He wrote,

> Understanding may, however, be of another sort, namely explanatory understanding. Thus we understand in terms of motive the meaning an actor attaches to the proposition twice two equals four, when he states it or writes it down, in that we understand what makes him do this at precisely this moment and in these circumstances. Understanding in this sense is attained if we know that he is engaged in balancing a ledger or in making a scientific demonstration, or is engaged in some other task of which this particular act would be an appropriate part. This is rational understanding of motivation, which consists in placing the act in an intelligible and more inclusive context of meaning. Thus we understand the chopping of wood or aiming of a gun in terms of motive in addition to direct observation if we know that the woodchopper is working for a wage or is chopping a supply of firewood for his own use or possibly is doing it for recreation. But he might also be working off a fit of rage, an irrational case. (Weber 1978, p. 8-9)

More recently, comparative sociologists have argued that case-oriented studies may be more authentic with regards to "uniqueness, holism, experience, meaning, narrative integrity, or cultural significance" and may surmount some of the practical difficulties of variable-oriented research (Ragin 1997, p.29). Other sociologists have described their goal as "interpretive" because they seek to "[use] concepts to develop meaningful

interpretations of historical patterns" (Skocpol 1984, p.368), rather than trying to build generalizable models. My study is both case-oriented and interpretive in these senses.

Within the field of Science and Technology Studies, Sheila Jasanoff has been arguing in favour of comparative studies. In her view, "there are persistent differences in national ways of meeting common economic and social challenges" (2005b, p.8); it is therefore essential to compare different national political cultures. My approach differs from Jasanoff, however, because she takes the nation-state as her basic unit of analysis. Her work tells us something about fundamental British, American, and German characteristics, especially in their civic epistemologies, their "culturally specific ways of knowing" (2005b, p.9). My study is both more global and more local than this approach. Although I compare across different nation-states, my goal is not primarily to elucidate essential aspects of these countries' national political cultures. I have called my study a social worlds analysis, but it is also a case study of globalization. Both the environmental movement and Western liberal governance are highly mobile forms that cross national boundaries and influence one another. At the same time, my comparison is more local because I compare sub-national organizational differences. As we will see, at times the government campaigns are more similar to each other than to their compatriots' non-government campaigns. My purpose, then, is to explore my research questions within the context of the social world of climate change campaigning, while remaining cognizant of both interconnections and divergences on organizational and national levels.

Cases

Thus far, I have spoken broadly of national and institutional level comparisons. However, my study is more focussed than these categories suggest. In order to achieve some measure of ethnographic depth, I focussed on one organization of each type (Canadian or Australian and government or non-government). These organizations are not necessarily representative of their category but rather are highly influential and visible across their common social world. In the sections to follow, I provide some brief historical and contextual information about the campaigns as background for the substantive discussions in the chapters to follow.

One-Tonne Challenge (OTC): Government of Canada

The Canadian government campaign, called the One-Tonne Challenge, must be seen in the context of Canada's ratification of the Kyoto Protocol. After receiving personal support from Liberal Prime Minister Jean Chrétien and a favourable vote in Parliament, the Kyoto Protocol was ratified in December 2002. Leading up to ratification, the government presented a discussion paper of different options for meeting Canada's Kyoto target: a reduction of 6% below 1990 levels of greenhouse gas emissions. This paper became the *Climate Change Plan for Canada* which set out emissions reductions targets for different sectors of the economy and society. One

section of the Plan set the goal for each Canadian to reduce emissions by one tonne of greenhouse gases, out of an average of five tonnes generated by each Canadian per year (Canada 2002, p.45). The Plan stated:

> By taking small actions at work, at home and on the road, Canadians can reduce greenhouse gas emissions, while reducing air and water pollutants. Individual Canadians can do their part in achieving our climate change objectives by establishing goals for reducing their greenhouse gas emissions. This Plan proposes an individual target of one tonne, recognizing that some Canadians will have scope to do more and others less. Achieving this goal would reduce Canada's greenhouse gas emissions by more than 30 MT [megatonnes]. (Canada 2002, p.45)

After its introduction in the *Climate Change Plan for Canada*, this program was named the "One-Tonne Challenge."[8] The campaign was jointly administered by Environment Canada's Climate Change Bureau and Natural Resources Canada's Office of Energy Efficiency. The One-Tonne Challenge included a "Tips Guide" of actions that individuals can take "on the road," such as driving 10% less or giving up a second car, and "at home," such as installing an energy efficient furnace or lowering the thermostat (Canada 2004a). The campaign website featured an online calculator to quantify individuals' current emissions and to help them develop an emissions reduction plan. The campaign also ran high profile advertisements, featuring comedian Rick Mercer in English and actor Pierre Lebeauin French. Finally, the One-Tonne Challenge worked with government employees, teachers, youth, community groups, and businesses to promote and implement the campaign. It ran from March 2004 to April 2006 when it was cancelled by the newly elected Conservative government.

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[8] In French, the One-Tonne Challenge is called the "Défi d'une tonne."

Cool Communities: The Australian Greenhouse Office (AGO) and the Conservation Councils

Cool Communities was developed jointly by the Australian Greenhouse Office of the Department of the Environment and Heritage and several conservation councils from around Australia. The term "conservation council" refers to a particular type of environment group.[9] Each state and territory has at least one environment organization, usually called a "conservation council," that represents the movement in that state. The conservation councils' members are both local environment groups and members of the public from that state. The conservation councils mobilize around state-based environmental issues, though they at times also participate in national debates. Historically, the conservation councils tended to work on more traditionally conservation-oriented issues, such as land clearing. In order to develop their capacity to work on climate change issues, they asked the AGO for funding to create climate change advocacy campaigns. The AGO negotiated with the conservation councils, steering the campaign towards a behaviour change program aimed at householders.

Cool Communities ran throughout Australia from 2001 to 2004. The AGO provided funding, developed communications materials, and oversaw the overall

[9] Cool Communities referred to these groups as "Australian environment organizations" (AEOs) to encompass those few groups, such as Environment Victoria, with names that do not include the term conservation council (as compared to groups such as the Conservation Council of the South East Region and Canberra). I have adopted the more colloquial term "conservation council" in order to distinguish these groups from the national environmental organizations such as the Australian Conservation Foundation.

administration of the campaign. The AGO funding was used in part to hire a "facilitator" for each state and territory in Australia, who would be housed in the local conservation council office.[10] Together, the AGO staff and the facilitators solicited and selected proposals from community groups to undertake projects to reduce their members' greenhouse gas emissions. The facilitators provided assistance and liaised between the communities and the AGO. In Round 1 of the program, twenty-two "communities" were selected, including municipal governments, a church parish, a university food co-op, and a credit union. In Round 2, sixteen communities were funded, of which twelve were new and four were continuing from Round 1. Some new Round 2 communities were a low-income apartment building, an insurance company, a high school, and more municipal governments. In total, then, thirty-eight "communities" participated, reaching thousands of individuals. The communities undertook projects such as conducting energy audits of homes, showcasing a greenhouse-friendly demonstration home, offering workshops on energy efficiency, and organizing "walking school buses" (escorting children to school on foot rather than by car or on a bus).

Climate Change and Nature Challenge: David Suzuki Foundation (DSF)

[10] Because of its geographic remoteness, the Northern Territory was represented by two conservation councils: one in Darwin and one in Alice Springs. The Australian Capital Territory (Canberra) had two staff members at its conservation council, a facilitator and a national "Program Manager," who supervised the facilitators and served as liaison between the facilitators and the AGO.

While the government campaigns have large offices of their own, the non-government campaigns usually have just a couple of campaigners, who are obviously working in much smaller and more tightly-knit organizations than their government counterparts. To contextualize the non-government campaigns, then, I will describe a little about their home organizations before describing the campaigns themselves.

The David Suzuki Foundation was founded in 1990 by Dr. David Suzuki, geneticist and broadcaster, and his wife Dr. Tara Cullis, writer, professor, and activist (David Suzuki Foundation 2006b). According to DSF, their organization emerged following a Suzuki environmental program on CBC radio called *It's a Matter of Survival*, which received over 17,000 letters from listeners (David Suzuki Foundation 2006b). In response, Suzuki and Cullis organized a "think-tank retreat," and the Foundation emerged as a result of these discussions. Today, DSF is one of the largest Canadian environment groups, employing approximately 35 people in Vancouver. They have 40,000 members and are funded by donations and foundation grants; they do not accept government funding. Their main campaign areas are climate change, ecosystem-based forestry, sustainable fisheries, aquaculture, and biodiversity (David Suzuki Foundation 2006b).

DSF has seven staff members working on climate change (David Suzuki Foundation 2006b). They lobby government, conduct policy research, write reports, and issue media releases. The Nature Challenge campaign is part of the "Web of Life" sustainability group. According to Suzuki, he proposed this campaign because the audiences at his many speaking engagements were always asking what they could do

to help the environment. The campaign was launched in 2002 at a press conference with Suzuki and Cullis, and Canadian celebrities Ron MacLean (hockey broadcaster), Robert Munsch (children's author), and Mary Walsh (comedian). The campaign invites individuals to adopt three of a list of ten steps that help protect nature, such as reducing home energy use by 10%, eating meat-free meals one day a week, and choosing a home close to work or school. The campaign has two full-time staff members; they also partner with other organizations and communities to promote the campaign.

Climate Change and GreenHome: Australian Conservation Foundation (ACF)

ACF began as an organization of the establishment. It originated with a visit to Australia by HRH Prince Phillip, the Duke of Edinburgh, in 1963 (Warhurst 1992, 1993). He suggested that a branch of the World Wildlife Fund should be established in Australia. Following this visit, Francis Ratcliffe of the government's Commonwealth Scientific and Industrial Research Organisation (CSIRO) convened a meeting of scientists and others interested in conservation. They developed the idea of an Australian Conservation Foundation, borrowing the name from the Conservation Foundation in the U.S. An interim governing Council was created in 1964; ACF was incorporated in 1966. ACF's first President was Sir Garfield Barwick, Chief Justice of the High Court, followed by Prince Phillip. However, in 1973, ACF made a sharp change in direction. This shift was due in part to a change in the federal government

and in part due to ACF's failure in the major conservation battle over Lake Pedder, which was flooded in 1972 (Warhurst 1992, 1993; Hutton and Connors 1999). At a regular Council meeting, councillors voted for a motion calling on ACF to become a "vigorous champion of conservation" (Warhurst 1993, p.11), an event that was described by a later commentator as a "coup" (Warhurst 1993, p.11). Signifying the change in direction, Geoff Mosley was appointed as a new director at this 1973 meeting; he served until 1986. ACF was led by several presidents between 1986 and 1989. From 1989-2004, the president was Peter Garrett, a lawyer, former Nuclear Disarmament Party candidate, and rock star from the band Midnight Oil (Burgmann 2003). He resigned in 2004 to run as an MP for the Australian Labor Party and was replaced by environmental scientist Prof. Ian Lowe. Today, ACF campaigns on issues such as climate change, rivers and water, forests, land health and salinity, sustainable cities, nuclear technology, Asia Pacific, and corporate responsibility. ACF is funded by a combination of membership fees, donations, and government grants (Australian Conservation Foundation 2005e). ACF is one of the largest environment groups in Australia, with 60 employees, a governing Council of 37 representatives, and over 40,000 members and supporters (Australian Conservation Foundation 2006b).

ACF's climate change team consists of three full-time staff members, one in Sydney and two in Melbourne. The Sydney campaigner is the leader of the team, which lobbies government, attempts to influence businesses, issues media releases, collaborates with other environment groups, and seeks climate change commitments during elections. The two Melbourne campaigners assist with these tasks but are also

more focussed on specific initiatives. One campaigner works on sustainable cities and the other is responsible for the Australian Business Roundtable on Climate Change, an initiative to encourage leading corporations to develop a vision for a future economy with much lower greenhouse gas emissions. The GreenHome campaign, though it has strong climate change component, is housed in the Sustainable Australia campaign group, which has three staff members. GreenHome is managed by one campaigner with assistance from her manager, who supervises other Sustainable Australia campaigns as well. GreenHome was launched in 2005 as a pilot project working with individuals in a few communities. The goal is to expand the project to all of Australia, working directly with some individuals and trying to reach many others through a website. The campaign asks individuals both to take actions in their own lives and to become more politically active.

Methods

With regards to these four cases, I combined three methodologies: participant observation, interviews, and document analysis. This multi-pronged approach enabled me to access different aspects of the phenomena I was studying. I used participant observation to understand something of the experience of campaigners' daily lives; to observe practices, material objects in their worlds, and decision-making in action; and to understand taken for granted beliefs, meanings, and assumptions. Through

interviews, I discovered respondents' own views of their work, explored the histories of both their campaigns and their personal biographies, and learned how they interacted with other organizations. Finally, the document analysis allowed me to scrutinize the public face of campaigns and the outcome of the work of the campaigns: the material and activities they share with their audiences. I discuss each of these methodologies in more depth below.

Participant Observation

Participant observation was the starting point for all of my methodological approaches. It was the starting point both literally, in that it was what I did first, and conceptually, in that it formed the foundation for how I interpreted interviews and documents. I conducted participant observation in five offices: Environment Canada's Climate Change Bureau in Ottawa, the Australian Greenhouse Office Community Partnerships group in Canberra, the Conservation Council of the South East Region and Canberra, the Australian Conservation Foundation's Melbourne office, and Friends of the Earth Australia's Melbourne office. I will explain the rationale behind each of these stints in turn and then describe a few other types of participant observation. Finally, I will discuss the kinds of activities that I undertook when I was "doing" participant observation.

I endeavoured to spend two months with each of my four main cases: OTC, Cool Communities, DSF, and ACF. I succeeded except in the case of DSF, which I

will discuss further below. At the One-Tonne Challenge, I spent two months at Environment Canada's Climate Change Bureau in Ottawa. I worked most closely with the One-Tonne Challenge campaigners, attending staff meetings, talking informally with staff, and working on a project for their group. I also interacted regularly with other Climate Change Bureau staff members, who were working on climate change policy either domestically or internationally. The One-Tonne Challenge is jointly managed between Environment Canada and Natural Resources Canada, but I chose to focus on Environment Canada because historically it has been most centrally preoccupied with climate change. As I mention in the interview section below, I did interview the manager of the OTC from Natural Resources Canada.

Cool Communities is fundamentally a partnership, so it was impossible to conduct detailed observation in a government office, at nine environment groups, and at dozens of community organizations. I focussed my attention on the Canberra hub of Cool Communities, which played a leadership role in the campaign. I spent two days a week at the Australian Greenhouse Office, Community Partnerships branch. I spent another two days a week at the Conservation Council of the South East Region and Canberra (CCSERAC), the conservation council which was not only responsible for the Australian Capital Territory's participating communities but which also housed the Program Manager, who coordinated all the conservation council facilitators and liaised with the AGO. This central location in Canberra enabled me to meet many of the other participants as well. I attended a Planning and Review Meeting, a gathering of all the government and environment group staff from across Australia. I also met

leaders from Canberra's participating community groups. When I was in Melbourne, I visited the office of Environment Victoria, the Cool Communities conservation council for the state of Victoria.

I spent almost three months at the Australian Conservation Foundation head office in Melbourne. I worked most closely with the Sustainable Australia campaign, which was responsible for, among other projects, the GreenHome campaign. I also worked with the climate change campaigners. I attended regular staff meetings, a broad-based campaigners' meeting, and a governing Council meeting. I also visited the ACF office in Sydney, during a trip with ACF staff to meet with WWF and Greenpeace representatives to discuss strategies for an upcoming national election.

What did I actually do when I "did" participant observation at these offices? At the most fundamental level, I was assigned a desk and sat there during the work day. I also "hung out" outside work, whenever I was invited. I ate lunch with Environment Canada employees at the Subway in Gatineau (near Ottawa) and went for drinks with ACF staff at Melbourne's famous Night Market. I chose not only to observe, though, but also to participate in the organizations' work. For the purposes of "fitting in," it helped to have my own projects to work on during the day. These projects also gave me the opportunity to interact with staff members on work-related matters. In addition, though, I wanted to make a useful contribution to the organizations since they were giving to me so generously. These organizations provided me with workspace in their office, access to their meetings, and time to interview them; I felt that it was the least I could do to donate my skills on a project of

their choice. I did ask, though, that these projects be climate change campaign related so that my observation and my participation could be complementary. At Environment Canada, therefore, I wrote a report on the use of recognition in behaviour change campaigns. At Cool Communities, I conducted an evaluation of Round 2 of the program. At ACF, I wrote a policy paper on emissions trading for individuals and gathered information on energy efficiency policies in North America.

Thus far, I have not mentioned my fourth case: the David Suzuki Foundation. Unfortunately, despite repeated efforts for over a year, I was not able to gain access to this organization. It is difficult for me to understand why since I never got to know this group as intimately as the others. Perhaps the reasons were circumstantial; I planned to travel to Vancouver only after I had secured access, whereas in the other cases I was able to meet face to face before finalizing my access arrangements. Perhaps my contacts were not as strong for this organization. Or, perhaps, the culture of this group was more closed to outsiders, more suspicious of researchers, or more concerned about their reputation. For whatever reason, every avenue of gaining access that I explored finished in a dead end. Once that became clear, I had the choice of replacing DSF with another case, or including them without the ethnographic access. This was a difficult dilemma because, on the one hand, my ethnographic interactions were so rich for my other cases that I hesitated to include a case without that source of data. On the other hand, DSF was so important in Canadian climate change politics and in environmental campaigns aimed at the public, and David Suzuki himself such an icon of environmentalism, that it seemed wrong to exclude

them just because of logistical difficulties. I decided that the latter reason outweighed the former and included them based only on interviews and textual analysis. I also learned about them from speaking to their environmental movement colleagues, and from observing their work at events such as the UN climate change meeting in Montreal. In addition, since I would not have ethnographic access to DSF, I decided to broaden my view of the rest of the Canadian environmental movement. I thus interviewed a representative from four non-government groups in Canada working on climate change and/or campaigns related to personal actions: Pollution Probe, The Pembina Institute for Appropriate Development, The Otesha Project, and EnviroCentre. This breadth combined with the depth of participant observation at the other three campaigns enabled me to amass enough data to write the text to follow.

In addition to my more involved participant observation, I also observed a wider range of environment-related events. This helped me to gain insight into how my main cases fit into the broader community and also to understand something of the diversity of environmental organizations. I thus attended events such as the UN climate change meeting in Montreal; sustainable living fairs in Melbourne and Ottawa; presentations by WWF and The Otesha Project; The Otesha Project book launch; and a meeting between WWF, Greenpeace, and ACF. As I discuss further in Chapter 3, I also participated in The Wilderness Society's self-guided tour of a Tasmanian forest. Finally, although it was not one of my main four cases, I did conduct participant observation for two weeks at Friends of the Earth's Melbourne office, during their Climate Justice tour. In addition to helping out at their office, I attended the Tour's

Melbourne events, including presentations, media interviews, and social gatherings. I chose to devote more time to this Climate Justice tour because, as we will see, it was so different from all the other organizations' approaches to climate change campaigning that I wanted to touch upon it as a contrast case.

Reflections on Participant Observation

Participant observation inevitably raises the question of "fitting in." Fitting in is a two-way process of accommodation between the researcher and her hosts (Wax 1971). The researcher must adapt her practices to those appropriate for her new setting; at the same time, the researcher must take into account her hosts' views of her as an outsider. For example, William F. Whyte described how he first tried to fit in by using the profanities common to street corner society (1955). Whyte found, though, that his hosts objected because he was not acting how they thought he should; they wanted him to act "like himself." I too encountered a gap between my view of myself as a researcher and my hosts' views. The first site that I went to was the One-Tonne Challenge where I was frequently introduced as someone studying social marketing. This was a strange experience because I had never heard of social marketing until beginning this field work stint. Generally, at every site where I did participant observation, I was seen as someone who was studying something directly relevant to the campaign at hand. In a way this was true since it was the campaigns themselves that were of interest to me. As I learned more about the campaigns, my knowledge

became correspondingly more useful to my hosts. By the end of my fieldwork, then, I really did know a lot about social marketing. However, I could not answer many of the campaigners' questions, then or now, such as which campaign was most effective at eliciting greenhouse gas emissions reductions. I am sure that if the campaigners take the time to read this text, they will find much that is glaringly obvious and familiar to them and much that is surprising in its "foreign" perspective. A few campaigners were concerned that I was out to spy on them or air their dirty laundry. I tried to deal with this by contributing to their work, showing genuine interest in it, and thus gaining a (hopefully deserved!) trust over time. I did not hide my status as a researcher, though, not least because I was asking so many people for interviews!

Nevertheless, it was pretty easy for me to "fit in." My case study organizations were all "knowledge-based," so many staff members conducted research of their own, and many held advanced degrees themselves. I matched other demographic characteristics: many of the campaigners were young, white, middle-class people like myself. By spending a longer amount of time with each organization, though, I was also able to see the differences between campaigners: across campaigns, of course, but also across generation, position, location, or biography. For example, at Cool Communities, where I was switching between government and non-government offices within a single week, I became attuned to the identity differences that cut across involvement with the same campaign (Chapter 6). Each day, I tried to dress appropriately for each office - "business casual" for the government office, and just plain casual for the environment groups. When the two groups held meetings

together, I was in a bit of quandary. Who should I "side" with in my dress? In other words, I tried to learn from both the ease with which I fit in and the efforts that I had to undertake in order to fit in. Taken together, these kinds of experiences were invaluable for coming to understand the culture of the campaigns.

Interviews

I conducted 37 interviews during the course of my research. Of the 37, 19 were done in Canada and 18 in Australia; 17 were done with government employees and 20 with non-government employees. I followed basically the same pattern at every organization in terms of who to interview. As much as possible, I interviewed all of the rank and file climate change campaigners. I then tried to gain a broader view of the organization by interviewing a manager or director. At the One-Tonne Challenge, I interviewed 9 campaigners (8 from Environment Canada and 1 from Natural Resources Canada). I also interviewed 3 employees from elsewhere in Environment Canada's Climate Change Bureau, and 1 employee from the Privy Council Office who was involved in drafting the *Climate Change Plan for Canada*. At Cool Communities, I interviewed 4 government campaigners and 6 non-government campaigners, from Canberra and Melbourne. At ACF, I interviewed 6 people and at DSF 2 people. Looking more broadly, in Australia I interviewed 2 other environmentalists (from Friends of the Earth Melbourne and Brisbane), and in Canada

4 others (1 each from Pollution Probe, The Pembina Institute for Appropriate Development, The Otesha Project, and EnviroCentre).

In addition to these research interviews, I conducted 13 interviews at Cool Communities as part of my evaluation of their program (see Participant Observation above). Of the 13, 2 were with government, 7 with environment groups, and 4 with community groups. 3 of these people were interviewed again for my own research. I consider these interviews to be more a part of my participant observation than my interviewing because the questions that I asked were determined by the needs of the campaign, rather than my research. However, I learned a lot from them, especially from speaking with the community groups, and from speaking with staff members from all 8 Australian states and territories as part of these interviews.

Returning to the research interviews, these were all semi-structured. I brought in a list of questions but was also open to topics brought up by the respondents. In addition, I always asked respondents if they had any thoughts that they would like to add, and often they did. I tailored the questions to each organization and indeed to each individual since I was familiar with their roles from my participant observation. However, I pursued several common lines of questioning across most of the interviews. I began the interviews by asking about respondents' work responsibilities and the type of activities they undertake on a typical day. I then got into broader questions about the history and essence of their campaign. Finally, I moved into areas touching more directly on my research questions, asking about their relationships with other organizations, the role of the Kyoto Protocol in their work, and the role of

science in the campaigns. I brought up my specific interests near the end in order to see how the issues that spontaneously emerged in the first part of the interview related to my research questions. I concluded the interviews by asking about respondents' educational and employment backgrounds.

I used the software program NVivo to code both my interviews and my field notes. Before I began coding, I brainstormed an extensive list of codes, of which I found about one third to be highly relevant to the data I collected. These original codes came primarily from my research interests; I thus had various codes relating to the role of science, the relationship between government and non-government groups, and the effect of the Kyoto Protocol on the campaigns. As the coding progressed, I developed other codes "in vivo," that is, emerging from the language of the respondents themselves. These emergent codes included ones on the responsibility of individuals, making private actions public, and the role of charismatic stories. My approach to coding was thus shaped by grounded theory, working in an iterative process that served as a dialogue between my own interests and the themes emerging from data itself (Glaser and Strauss 1967, Lofland and Lofland 1995, Emerson 2001).

Document Analysis

Finally, I employed document analysis as another complementary methodology. I did not undertake extremely detailed qualitative textual analysis, nor did I attempt a large-scale, quantitative content analysis. Instead, I selected several

significant publications from each campaign for close reading. By "close reading," I mean something akin to coding my interviews, but taking very careful notice of the images as well as the text. I also analyzed these texts in the context of what I knew about how they were produced and why. I chose the most visible public documents, the documents most relevant to my research questions (such as ones focussing on science), and the ones identified by respondents in interviews. My goal through studying these publications was to examine the public face of the campaigns since only campaigners, their colleagues, and I had participant observation access. I also wanted to contextualize the documents by determining the role that they played in practice. I can clarify what I mean with two brief examples. From the One-Tonne Challenge, as we will see in later chapters, I conducted a very close reading of the "Tips Guide," a brochure with tips for reducing individuals' greenhouse gas emissions. I knew that it was significant because it was promoted in advertisements, highlighted on the website, and the staff devoted a significant amount of time to creating it. From the Nature Challenge, I examined a publication on the science behind the campaign, which I myself found by searching their website in detail. This publication was also mentioned in an interview, but only after I asked about science, not in our discussions of the most important aspects of the campaign. However, it was still important to devote a close reading to this publication because its contents, as much as its marginality, bore directly on my research questions. Finally, in addition to these detailed analyses, I gained a more impressionistic view of other campaign documents. As part of my research preparation, and later my participant observation, I read in a

more superficial way a very large number of documents. This gave me a "feeling" for the types of documents that provide both the milieu and the outcomes of campaigning. I also acquired this impressionistic view of media stories, both generated by and about the campaigns. Campaigners often tried to create or to respond to media coverage, so it was necessary for me to keep abreast of the relevant news, just as they did.

Conclusion

This chapter has outlined my comparative methodology and profiled my primary case studies. I described the axes of my comparison as Canada and Australia and government and non-government. My goal through these comparisons, I explained, was not to construct Millian causal arguments but rather to seek Weberian *verstehen*. I introduced my four main case studies: the One-Tonne Challenge, Cool Communities, ACF's Climate Change and GreenHome campaigns, and DSF's Climate Change and Nature Challenge campaigns. Finally, I described my three methodological tools: participant observation, interviews, and document analysis. In the chapters to follow, we will see how this somewhat schematic overview of my comparative methodology played out in the practices of researching and writing.

CHAPTER 3

CAMPAIGNS AND THE SCIENCE OF CLIMATE CHANGE

Introduction

As a social movement, environmentalism is notable for its significant involvement with science (Yearley 1996, 2005; Fischer 2000; Bocking 2004). Many environmental problems, especially more recent ones, are only available as issues because of scientific research. For example, the ozone hole as a problem in the Earth's stratosphere is constitutively dependent on scientific research on the atmosphere. It cannot be observed by the lay person, and it was brought it to public attention by scientific work. As well, the solution (reducing CFCs in the atmosphere) was dictated by scientific research into the causes of the problem. Individual scientists and scientific organizations have also been very involved in the environmental cause. Biologist Rachel Carson is widely credited with launching the modern environmental movement with the publication of her popular book *Silent Spring* (Carson 1962). In Canada, David Suzuki from the University of British Columbia helped found the David Suzuki Foundation; in Australia, Francis Ratcliffe of the Commonwealth Scientific and Industrial Research Organisation (CSIRO) helped found the Australian Conservation Foundation. Furthermore, the character of environmental claims is strongly influenced by science. Yearley has argued, using Weberian terminology, that

the environmental movement is "committed to, and uniquely favoured by, legal-rational authority" (1992, p.513). In contrast, "other contemporary social and political movements commonly draw on traditional authority (for example, nationalism), charismatic authority (new spiritual movements) or on some combination of these" (p.513). Thus, to continue with the ozone example, environmental scientists argued that it was a *matter of fact* that CFCs damage the ozone layer. Of course, many scholars (including Yearley) have pointed out that legal-rational thinking is only one element of environmentalism. Deep ecology, ecofeminism, eco-theology and other visions of environmentalism take more holistic, overtly political, or spiritual approaches (Dryzek 2005). Even within the legal-rational style of environmentalism, though, activists have doubts about science and technology. Although scientists have identified environmental problems and worked towards solutions, they have also assisted in creating the technoscientific products that cause significant environmental damage (Rycroft 1991; Yearley 1992, 2005; Fischer 2000). If scientists introduced us to the ozone hole and demanded that we reduce our use of CFCs, they also helped invent DDT and nuclear weapons.

Nevertheless, the mainstream environment movement, as represented by most of the large and well-known environment groups and certainly by government environment agencies, relies heavily on science despite any lingering ambivalence about our technological society. This chapter will explore a particular aspect of the relationship between environmentalism and science: using science to persuade the public that climate change is serious enough to warrant committed action against it.

Climate change is an ideal case study for examining the relationship between environmentalism and science because much of the public debate has focussed squarely on such questions.

In particular, the debate over the "reality" of climate change science is one of the most well-known aspects of this environmental issue. Media stories, in their search for "balance," have often given equal billing to scientists on either side of the debate about whether climate change exists and, if it exists, whether it has been caused by the actions of humans. If the media is trying to show the balance between the two scientific opinions, when campaigners engage this issue they are trying to show the opposite: that scientists overwhelming argue that climate change is occurring and that it is caused by humans. In his weekly column "Science Matters," for example, environmentalist David Suzuki profiled the work of University of California, San Diego professor Naomi Oreskes. In a short paper in *Science*, Oreskes reported that her survey of over 900 peer-reviewed articles on climate change did not uncover a single one that departed from this scientific consensus (Oreskes 2004). Suzuki attacked the dissenters as conspiracy theorists who make "bizarre pronouncements" in "the face of overwhelming evidence" (Suzuki 2005a). The essential issue for Suzuki is whether the uncertainties inherent in climate change science should undermine the public's trust in the whole scientific enterprise. As Suzuki puts it,

> To say that we don't know enough about climate change to prompt action is to say that the entire discipline of science, as we know it, should not be trusted. Uncertainty is inherent in the scientific process. Currently, the vast majority of scientific evidence tells us that human activities are causing climate change and that it could have very serious

> consequences if we don't do something about it. Of course, the science could all be wrong - but I wouldn't bet our future on it. (Suzuki 2005a)

Campaigners in Canada have also argued that Canadians do not doubt the science of climate change. One of the leaders of the One-Tonne Challenge claimed,

> Most Canadians accept that climate change is happening now. I think we are *well past that doubting*. You still see it in the media but the media like to I think ensure that there is an opportunity to continually question the reason for taking action on climate change. And that is the role of the media, to ensure that there is always that questioning of the policy direction. But Canadians generally accept that climate change is happening.

Campaigners have thus tried to move beyond this question of doubt or faith in science. Although at times they may highlight events that show faith in the scientific consensus, or they may condemn cases where the science is doubted, in general the campaigners do not spend much time or attention on this issue today. Rather, the primary concerns for campaigners are different ones: how can they make climate change visible to the public, and how can they motivate the public to take action? This chapter describes how campaigners make climate change visible by presenting particular pieces of scientific data. It then shows how campaigners seek to motivate the public by highlighting the predicted impacts of climate change on natural icons, human health, and the economy. In both cases, campaigners rely on science. Why do they choose this science-based approach? First, campaigners draw on science to increase their own credibility. Second, their use of science is premised on the belief that the public will react in the same way that the campaigners did, by being motivated to take action. Despite these uses of science, however, overall climate change science plays a surprisingly marginal role in campaign publications and in the daily lives of

campaigners. Thus, while climate change science may be authoritative for the campaigners themselves, they are beginning to doubt that it is sufficiently motivational for the public.

Technologies of Visibility

During the Australian election campaign of 2004, one major issue stood in the way of the environmentalists who were trying to put climate change on the national agenda. This issue had everything going for it that climate change did not; it was easy to see, easy to imagine the consequences, and already an historically emotional wedge in Australian politics. This issue was forestry, specifically, the logging of old growth forests in Tasmania. This is not to suggest that climate change activists did not support ending logging in old growth forests, for they did. Rather, this is to suggest that by comparing "forests" (as the environmental debate is colloquially known) and climate change, we can better understand how climate change campaigners were struggling to make their environmental issue visible to the public.

One of the defining features of Australian environmental groups' forest campaigns is their use of various technologies of "seeing." I will take as an example the group that has been most focussed on the issue of forests: The Wilderness Society (originally The Tasmanian Wilderness Society), or TWS. One of TWS's major campaigning strategies is to encourage people to see the forests for themselves. This

seeing can be done at a distance, by distributing images of the forest through the media, websites, and magazines, for example. However, their preferred technique is for potential supporters to visit and experience the forests in person. TWS has various methods for such embodied experiences. They offer a self-guided tour, where individuals can follow instructions in a TWS booklet to find and then read an interpretive passage about each location. They also run bus tours where a TWS guide leads a group through a forest experience. For high profile potential supporters, they can arrange a private guided tour. Bob Brown, the leader of the Australian Greens party, took the Australian Labor Party leader Mark Latham on such a tour in 2004.

What do you see when you "see" the forest? This seeing occurs on four levels that are layered upon one another. First, you see the phenomenon that campaigners are trying to display. The self-guided tour compares forests before and after logging. This is a contrast in extremes. You can visit a tree that is taller than the tallest skyscraper in Tasmania's capital of Hobart. This might be steps away from a stump of a logged tree; the stump is several times larger than your car. You can also visit a "scenic overlook" where you can survey a valley that was clearcut and then burned. Second, layered upon these visual displays of absent trees, there is a higher-order level of seeing that involves imagining the impact on the charismatic species inhabiting the forest. Since it is unlikely for most visitors to see, for example, a koala, the tour describes the natural habitat of these creatures. The tour then describes in great detail the logging practice of distributing poisonous carrots to kill the wildlife, so that they do not eat the seedlings planted for the next generation of log harvesting. Third, in

addition to seeing the trees and the animals, the tour asks you to see the connections between logging and Australian history and politics. The tour addresses concerns about jobs that would be lost in the forestry industry should logging be halted. With overtones of national pride, the tour argues that the logging merely creates woodchips for Japan, not large numbers of skilled jobs in Australia. Finally, the tour explicitly makes connections to the spiritual experience of forests. One of the highlights of the tour is a visit to the "Chapel," a tree with a large hollow inside. Stepping inside the tree and communing with nature is analogous to entering a chapel and communing with God.

Neither forests nor climate change are automatically "visible" to the senses. In both cases, work must be done to make the phenomenon visible and to make it an issue of concern to potential audiences. However, TWS is able to bring the forest to people, or better still the people to the forest, so that they can see the phenomenon, the impacts, the politics, and the moral overtones of the debate for themselves.

In contrast to the forests campaign, for most Canadians and Australians, climate change cannot be directly observed. Campaigners view this visibility problem as an obstacle to campaigning on this issue. One ACF campaigner commented on this problem, comparing climate change directly to forests: "It's very hard to fundraise on the issue [of climate change]. … It's so heady, so conceptual, you can't see the trees being cut down." However, climate change campaigners are aware of technologies for making climate change visible. One such technology is analogous to bringing people to the forest; campaigners can describe the experience of individuals who are seeing

climate change in order to make the problem visible by proxy. In Canada, it is the Inuit who usually serve as the conduit to the experience of seeing climate change. A campaigner from the One-Tonne Challenge told this story:

> We funded a project a while back. It is called Inuit Observations on Climate Change, which was literally interviews with elders about how they'd seen the climate changing. And there was an element in it that strikes me still to this day. This old grizzly fellow who was an elder, and . . . the elder kind of went: "I went up there the one day and the lake was gone" because the permafrost had let go and the whole lake slid into the ocean. … And the elders say: "Our knowledge is no longer useful. We can't tell you when the ice is good, when the ice is safe because it is not the same anymore."

For the vast majority of the population living in southern Canada, the only way to "observe" climate change is to recount stories such as this one: to see climate change through another's eyes. However, although a One-Tonne Challenge campaigner recounted this story, such technologies of seeing do not appear in the public One-Tonne Challenge materials.

In contrast, Friends of the Earth Australia put technologies of seeing climate change front and centre in their Climate Justice Tour. This campaign invited speakers from the Pacific islands of Tuvalu and Samoa to visit multiple cities in Australia, speaking about their personal observations of the climate changing, especially sea level rise.[11] Their stories and photographs allowed Australians to "see" the impact of climate change for themselves. This, however, was not a widespread technique among climate change campaigns. Although the Australian Conservation Foundation did provide some financial support, the Tour's events were not well-attended and the

[11] There was also a speaker from Nigeria, who spoke about the impact of oil extraction on his country, and the causal relationship between burning fossil fuels and climate change.

technique was not imitated by other groups. The only imitation came from Friends of the Earth itself, which then ran an anti-nuclear Radioactive Tour on the Climate Justice Tour model. Furthermore, Friends of the Earth Australia was considered in the broader Australian environmental movement as too radical and impractical. In the case of climate change, their technologies of seeing were part of their framing of the problem in terms of human rights and global justice. This approach was not adopted by any of the other climate change campaigns as their primary frame.

Instead, mainstream campaigns make climate change visible by presenting scientific data as representative of the problem. The most famous piece of scientific data goes by the nickname "the hockey stick graph" (at least in Canada, home of many hockey fans). This graph shows the Earth's average temperature fluctuating throughout history before skyrocketing into the future (e.g. Australian Greenhouse Office 2002). Visually, the shape of this graph resembles a hockey stick lying on its side, with the blade located in the place of rapidly rising temperatures. The hockey stick graph frames the problem of climate change as an unnatural, monstrous increase in temperature. Other science-based charts delineate the responsibilities for climate change. There are pie charts that divide responsibility between different sectors of society, such as various industries, public institutions, and individuals. Others analyze the impact of individuals in terms of different types of actions and their varying emissions of greenhouse gases. For example, the One-Tonne Challenge uses a pie chart that shows that of personal greenhouse gas emissions in Canada, 49.9% came from passenger road transportation, 29% from space heating and cooling, 11.1% from

water heating, 7.5% from appliances, and 2.5% from lighting (Canada 2004a; see also Australian Greenhouse Office 2003a). These pie charts make climate change visible by connecting it to familiar objects and actions from daily life.

What is the connection between this data and climate change science research? The Intergovernmental Panel on Climate Change (IPCC) is an international body made up of thousands of scientists. They produce very high-profile consensus documents on climate change science (IPCC 2004). These include a technical report but perhaps more importantly a report for policy-makers which is widely circulated in the climate change community (IPCC 2001, 1995, 1990). This document exists in large part so that its scientific data can be reproduced for other audiences. For example, the Cool Communities brochure "Understanding Greenhouse Science" reprints a variation of the IPCC graph of the Earth's temperature from the years 1000 AD to 2100 AD (Australian Greenhouse Office 2002a). The pie charts of emissions responsibilities are also from the international climate change process. Each country that has signed the United Nations Framework Convention on Climate Change must report on their sources of emissions through a process known as the National Greenhouse Gas Inventories Programme (IPCC 2004). These results then become visible through the charts produced for campaign publications.

Motivating Action through Impacts

In addition to making climate change visible, campaigners also want to motivate the public to take action. Some of this motivation may come as a result of the scientific data on climate change. The hockey stick graph, for example, may motivate individuals to avoid an unnatural increase in temperatures. This approach frames the current climate as a disturbing aberration in contrast with normal temperatures. For example, in the text placed next to its reproduction of the hockey stick graph, the Climate Change Plan for Canada stated:

> While uncertainties exist about the timing and rate of future changes in this concentration, the UN Intergovernmental Panel on Climate Change (IPCC) – an international body made up of 2,000 of the world's top climate scientists – estimates that the average global surface temperature is likely to increase by between 1.4 and 5.8°C by 2100. While these changes may seem modest, even small changes in global average temperatures can have a dramatic impact on our climate. The last time the earth's average temperature was 5°C colder, for example, Canada was covered with three kilometres of ice. … The 20th century was the warmest century of the last millennium; the 1990s were the warmest decade of the last century and the years 1999 and 2001 were the warmest years yet. This is well beyond the range of natural climate variability. (Canada 2002, p.5)

If the hockey stick graph shows "the warmest years yet … well beyond natural climate variability," then perhaps individuals will be motivated to correct this deviation from the normal. However, campaigners place more stock in motivating the public through what is known in the climate change world as "impacts." These impacts are based on scientific predictions of the expected consequences of climate change, should it continue unchecked. Climate change campaigns describe impacts to natural icons, human health, and the economy. Campaigners hope that individuals will be motivated to act in order to avert crises in these three areas.

Natural Icons

An ACF campaigner concisely summarized how she references natural icons in her campaign to improve the environmental performance of commercial buildings:

> I think there is a growing appreciation and a strong cultural tradition in Australia for caring for the environment. Even though we've totally stuffed up the environment in many ways.[12] We have a cultural tradition of holding iconic natural places in high esteem so what I say to people is that if you care about the Great Barrier Reef and if you care about other parts of our environment that are iconic like the forests that make timber that go into buildings or the rivers where we get our water that we use in our cities. If you care about those things then you need to look at what we're doing in our commercial buildings so I make the link for those people I suppose.

There are also references in campaign publications to the predicted climate change impacts on natural icons. The major One-Tonne Challenge publication (the "Tips Guide") begins with the following statement: "In Canada, we may already be seeing signs of climate change. Melting permafrost in the North. Declining water levels in our lakes and rivers. And more extreme weather events, such as droughts, ice storms and floods" (Canada 2004a). The North, as an iconic part of the Canadian landscape, is often cited in Canadian climate change campaigns. The David Suzuki Foundation ran an advertisement asking Canadians to lobby their government to pressure the Russian government to ratify the Kyoto Protocol (David Suzuki Foundation 2003).[13]

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[12] "Stuffed up" is an Australian slang expression, similar to the phrase "messed up" in North American English.

[13] For the Kyoto Protocol to come into effect, developed countries responsible for over 55% of worldwide emissions had to ratify the treaty. Since the United States pulled out, Russia became the

Most of the ad was taken up by an image of a large ice field with a wide crack running down the middle. The text below read "Could we have your undivided attention for a moment?". There was also an image of a polar bear next to the accompanying information about Kyoto ratification. The polar bear makes an appearance in the One-Tonne Challenge youth website as well. Each action that reduces emissions is ranked in terms of its effectiveness. The actions are rated with either one, two, or three smiling polar bear faces, depending on their impact on emissions.

Australian campaign publications also cite the impacts for their iconic natural landscape. The Cool Communities brochure "Understanding Greenhouse Science" asks the question, "What are the potential impacts of climate change?" The answer begins,

> Australia, the driest inhabited continent on Earth, is likely to become even drier if the world hots up. Rainfall over most parts of the world will increase, but some places in the mid-latitudes, including parts of Australia, are likely to get drier. Changes in rainfall patterns and reduced soil moisture will affect agriculture and biodiversity. At risk natural environments include coral reefs, arid and semi-arid habitats in southwest and inland Australia, freshwater wetlands in the coastal zone and alpine areas. (Australian Greenhouse Office 2002a)

Similarly, the Australian Conservation Foundation ran a campaign under the slogan "Do YOU want to live in a world without penguins?" (Australian Conservation Foundation 2005b). A press release stated "A child born in Australia today may, in their lifetime, witness the death of the Orange Alpine Xenica butterfly species, Kakadu National Park and the Great Barrier Reef. They may be the last to build a

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only country with high enough emissions to bring the Protocol into effect. This occurred when Russia ratified in February 2005.

snowman in our Alpine regions. They may only ever see penguins in a museum" (Australian Conservation Foundation 2005a). In order to avert these impacts, the public is asked to make a donation to the group so that they can continue their lobbying efforts. These descriptions of the predicted impacts of climate change are linked to scientific research. The list of endangered natural icons is accompanied by an image of a butterfly next to the phrase "2˚C to extinction." This framing embeds climate change science into the way the problem is described.

Human Health

The second important impact of climate change that campaigners emphasize is the impact on human health. The Australian Conservation Foundation partnered with the Australian Medical Association to produce a report typical of this impacts genre. The report, called *Climate Change Health Impacts in Australia: Effects of Dramatic CO2 Emission Reductions*, describes the predicted consequences if emissions continue to increase until 2100: "If we do nothing to reduce greenhouse gas pollution, by the end of this century heat-related illnesses could kill thousands of people every year and the climate in Brisbane and Sydney could become suitable for dengue fever transmission" (Australian Conservation Foundation 2005c). The One-Tonne Challenge also links climate change and human health. A campaigner explained: "It's to our advantage to package a message about climate change along with clean air. Climate change to some people is still such a broad issue, it can be so many things.

But clean air brings it down and resonates, especially with urbanites who understand clean air and smog. Because you have smog alerts now on the weather network so the two messages tend to travel together." The campaign strategy, then, is to link climate change action to improving air quality and thus human health.

The Economy

Finally, the campaigns emphasize the predicted impacts of climate change on the economy. The One-Tonne Challenge "Tips Guide" opens with the warning that "smog-causing pollutants, ground-level ozone and particulate matter or soot are increasing our health care costs, affecting productivity and contributing to crop damage" (Canada 2004a, p.4). This is distinct from the health concerns, in that it refers to "health care costs" rather than human health impacts. The Cool Communities brochure "Understanding Greenhouse Science" also enumerates the impacts on various sectors of the Australian economy:

> Farming, tourism and coastal development will also be affected by these changing conditions. … Insurance companies are already reassessing their risk associated with extreme weather events as a result of recent hefty payouts. … More intense and sporadic rainfall (including from tropical cyclones) would increase flooding and associated loss of life, property and productivity. … More droughts are likely which would increase losses of crops, livestock, fisheries and wildlife, and decrease river flows, water quality and human health. (Australian Greenhouse Office 2002a)

The Australian Conservation Foundation is making the most concerted effort to argue the economic case. They have organized a "Business Leaders Roundtable" of major

Australian companies. The group will examine the impacts for business of climate change and articulate a vision for a "carbon light" future, in which Australia reduces its greenhouse gas emissions by 60% by 2050. While critics of action argue that anti-climate change policies are too expensive, then, the climate change campaigns counter that climate change itself will take a toll on the economy.

Why Science?

It is only through climate change science that these impacts are available. They describe why climate change is a problem. They also frame what kind of problem it is, by saying that it threatens each country's natural icons, the health of its people, and its economy. Most importantly, the predicted impacts of climate change are the most prominently used motivation. The impacts present climate change not as an abstract and distant effect but rather as an urgent crisis that will affect people personally. A One-Tonne Challenge campaigner articulated this connection between the impacts of climate change and motivation, "We use the science information to validate that policy direction and the call to action, and the impacts as a way to motivate Canadians to become concerned to a certain amount to do something to mitigate against that in their own region of the country." Why do campaigners employ this science-based approach to motivation? This method is not inevitable. We can see this by contrast with the marginal campaign of Friends of the Earth Australia,

mentioned earlier. Friends of the Earth uses a framework of human rights and global justice, personal connections and lived experience. Their Climate Justice Tour thus stands in stark contrast to the approach employed by the other campaigns. Rather, the scientific nature of climate change framing plays two distinctive roles. First, science is used to bolster the credibility of the campaigns. Second, the campaigners use science when they view the public as essentially similar in character to themselves. If so, then the public will respond to the same information that they receive with a level of concern that matches campaigners' own.

Credibility

The construction of credibility is a major topic in Science and Technology Studies (STS). STS scholars start from the premise that "no scientific claim 'shines with its own light'--carries its credibility with it" (Shapin 1995b, p.305). This does not mean that all claims are equally valid, but rather that "regardless of truth and falsity the fact of their credibility is to be seen as equally problematic" (Barnes and Bloor 1982, p.23). It is therefore necessary to examine "the specific processes of argumentation and political action whereby claims come to be accepted as true or rejected as false" (Shapin 1995b, p.305). In this context, Epstein has defined credibility as "the capacity of claims-makers to enroll supporters behind their arguments, legitimate those arguments as authoritative knowledge, and present themselves as the sort of people who can voice the truth" (1996, p.3). Epstein notes

that this type of credibility construction is undertaken "in many different ways in different arenas" (1996, p.3). In citing climate change science, then, campaigners are in part trying to enhance their own credibility by allying themselves with science as an authoritative form of knowledge. In this case, the credibility comes not from a "trial of strength" (Latour 1988) within the community of a "core-set" of scientists (Collins 1985) but rather in the wider arena of public debate. There are at least three aspects of scientific credibility that environmentalists can try to access: scientists as trustworthy kinds of individuals (e.g. Weber 1979, Shapin 1994), the scientific community as a trustworthy group (e.g. Merton 1973), and matters of fact as trustworthy forms of knowledge (e.g. Latour 1987). Of course, as is well-known for the case of climate change, the credibility of scientists, the scientific community, and scientific facts can be deconstructed (Nolin 1999; McCright and Dunlap 2000, 2003; Oreskes 2004). Nevertheless, this strategy is one that campaigners do at times adopt.

The David Suzuki Foundation offers the clearest example of using a trustworthy scientist to construct the credibility of the organization. The main means by which the Foundation constructs its credibility is through the presence of David Suzuki himself, the Chair of the Foundation. Suzuki's professional triumphs bring credibility to the Foundation by association. Suzuki's first career was as a successful geneticist. First at the University of Alberta and then at the University of British Columbia (UBC), Suzuki headed up important research laboratories. His most significant discoveries involved time sensitive mutations in fruit flies. Today, Suzuki is more well-known as a famous broadcaster on CBC radio and television. The David

Suzuki Foundation, therefore, is careful to constantly remind its audience that Suzuki is a scientist. He is always referred to as *Dr.* David Suzuki. Suzuki writes a column on the Foundation website, which is also reprinted for other publications, called "Science Matters." "Science Matters" deals with a wide range of topics, such as health care, anti-environmental interest groups, and green economics. The title "Science Matters" reminds the audience that Suzuki is a scientist. In addition to Suzuki, the Foundation distinguishes itself as an NGO that does not conduct political protests but rather focusses on research, policy, and education. Even in the campaign directly focussed on the public, the Nature Challenge, the campaigners are very aware of the connection between Suzuki's credibility as a scientist and the claims of the campaign. One Nature Challenge campaigner explained why there was a document explaining the science behind the 10 actions recommended by the Nature Challenge:

> We thought that by running with this type of a campaign that people would really think it's just a fluffy goofy list. … David Suzuki, because he's a scientist, we also have a very large scientific community that follows his work. So we really wanted to have the research there to protect the credibility of the program, and also to protect David's name. Everything we do here, every single thing, we always keep in mind that our largest asset is David. And if Dr. Suzuki's name is tarnished because of poor science, poor policies, that really reflects on him and his popularity or credibility. So we did it to cover his butt, and ours.

This is not unique to the David Suzuki Foundation. The Australian Conservation Foundation undertakes similar actions to link their own credibility with the credibility of a trustworthy scientist. First of all, they have a relationship with Suzuki. His comments on Australian climate change politics were featured on the Australian Conservation Foundation's website. Also, after their rock star President

Peter Garrett left the organization to run in a federal election, the organization appointed a scientist to replace him. Like Suzuki, he is always referred to with his credential, as *Professor* Ian Lowe. The announcement of his appointment emphasized his scientific background: "Professor Lowe is one of Australia's most respected environmental scientists. In 2001 he was made an Officer of the Order of Australia for services to environmental science. In 2002 he was awarded a Centenary Medal and the Eureka Prize and his contributions to the environment and science have been officially recognised by the Prime Minister and the Queensland Premier" (Australian Conservation Foundation 2004c). The Vice President Penelope Figgis described the importance to her organization of being headed by a scientist: "I believe that as a highly-credible, independent and internationally-recognised scientist, Ian will make an outstanding contribution to [the Australian Conservation Foundation's] mission to protect, restore and sustain the environment for future generations" (Australian Conservation Foundation 2004c).

In addition to these trustworthy scientists, the campaigns cite credible scientific organizations. All of the campaigns frequently cite the Intergovernmental Panel on Climate Change. Both government and non-government campaigns cite other government departments that are seen as credible scientific bodies. In Canada, the climate change campaigners cite the Meteorological Service of Canada; in Australia, they cite the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

Finally, campaigners try to increase their credibility by citing trustworthy scientific facts. The hockey stick graph, which is widely reproduced in the climate change world, is of this kind. As well, campaigners frequently cite the prediction that the Earth's temperature will increase by 1.5˚C to 4.5 ˚C. This prediction has remained stable for two decades, despite dramatic changes in scientific analyses (Van der Sluijs et al. 1998). By citing such trustworthy facts, organizations, and individuals, the campaigns hope to increase their own credibility by allying themselves with science.

View of the Public

Secondly, campaigners use climate change science when they view the public as similar in character to themselves. Campaigners are very motivated by the impacts of climate change, especially on natural icons. I observed a vivid expression of this motivation at the meeting where Cool Communities' government employees announced that the program's funding would be cut, that the non-government organizations would be likely excluded from any future incarnation of the program, and that therefore all the non-government campaigners would be losing their jobs. One of the longest serving non-government campaigners responded by saying how terribly sad it would be if "we lost the Reef." For this campaigner, the threat to her work and the threat to the Great Barrier Reef were almost one and the same. The director of the Australian Conservation Foundation elaborated further on this view:

> Some of the science predictions on the Reef are absolutely alarming, some of the science predications on Kakadu World Heritage Area are

> absolutely alarming, and some of the science predictions on the Wet Tropical Rainforests are absolutely alarming. A lot of conservation groups like us have a basis in nature conservation. There are very clear and imminent threats on some of the natural environment icons from climate change in Australia. I'm not saying we're not attuned to the impacts on society but those clear potential impacts on what are great World Heritage areas are very strong motivations for the conservation community to be paying attention to the issue.

When campaigners use climate change science to motivate the public, then, they are using much the same approach that motivates them to work on their campaigns.

This motivational technique may also be called an enlightenment approach to public understanding of science (Elam and Bertilsson 2003). In this approach, science instructs society on the facts that it needs to know, thus allowing the public to shoulder the responsibilities of citizenship. Here the campaigners serve as conduits between scientific researchers and the public by presenting the pieces of scientific data and climate change impacts that the public needs to know. This model implies that the public can learn the same material absorbed by the campaigners. Furthermore, this model is premised on the belief that the public will respond in what campaigners see as a moral fashion. As such, campaigners often repeat to themselves and to others statistics on the environmental consciousness of the public. For example, a David Suzuki Foundation campaigner stated that "95% of all Canadian see themselves as nature lovers," the Australian Conservation Foundation cited a poll that "84% of Australians are concerned about the environment and would like to see more being done," and a One-Tonne Challenge campaigner reassured herself that "the majority of Canadians - about 80% - think that our climate is changing." In addition to these

statistics, campaigners tell each other stories about the character of the public. As David Suzuki put it,

> Most people that I meet who are concerned with environmental issues particularly climate change are frustrated because they don't really know what to do. They don't know what the most effective thing is that they can do. They don't want to do something that they feel will be trivial or that won't be effective in the long run so that's the challenge in supplying people's demands for concrete things they can do.

If the public is essentially the same in nature as the campaigners, then by providing the public with science-based information, the campaigns presume that the public will respond with a level of concern that matches their own.

Science Disappears

It is clear that climate change science plays a role in the campaigns, both to enhance the credibility of the campaigns and due to a view of the public as similar in character to the campaigners themselves. However, it is important to place this role into a broader context. In other words, although climate change appears in the campaigns, where does it appear, when, and how often? Surprisingly, climate change science appears mainly in locations that are introductory or marginal to the campaigns' central purposes. In both the campaign publications and in the daily lives of the campaigners, climate change science "disappears" when we take a closer look. Brian

Wynne has described the phenomenon of science "disappearing" in quite a different context. He wrote,

> While--from an outsider's perspective--science and technical information are central to everyday life, the closer one gets to everyday discussion of apparently technical issues such as those examined in these projects, the more science seems to 'disappear.' This is not to deny the importance of science in such contexts but to note the extent (and variety) to which it needs translation, or 'reframing.' However, it is also clear that even in areas where technical assessment might be of value (e.g., in seeking action to reduce the hazards of local industry), there is often a sharp contrast between the high salience of the issues and the small number of information requests actually made. (Wynne 1991, p.116)

Wynne argues that understanding of science is based not on intelligence but rather on a decision as to whether it is worthwhile to learn about the science or not. In his words, "the judgment whether or not to show an interest in science therefore is a social one, tied to judgments of one's own power (or powerlessness) to act in one's social environment" (1991, p.118).

In the case of climate change campaigns, the science disappears in two ways: in campaign publications and in the daily lives of campaigners. However, as will be shown below, it does not disappear because campaigners are unable to or have chosen not to understand the science. Rather, the campaigners understand and occasionally use science, but in a very circumscribed manner.

Disappearing Science in Publications

In the public materials of climate change campaigns, science plays a marginal role, in different ways and to varying degrees. In the Nature Challenge and Cool Communities campaigns, there is a special brochure that describes the science behind their campaigns (Pazderka et al. 2002, Australian Greenhouse Office 2002). The Nature Challenge brochure is envisaged as one that will be available if specially requested, while the Cool Communities brochure is handed out as an extra item at public events. In both cases, the science brochure is extraneous to the main sites where the campaign is carried out: on a special Nature Challenge website in that case, and in direct householder engagement in the case of Cool Communities. The One-Tonne Challenge actually removed scientific material that had been developed for their key "Tips Guide" brochure (Canada 2004a). A campaigner explains, "There was a beautiful map of Canada and it had a little side bar with explanations about different things that were happening across Canada. I would've liked to have seen it in, but again there was a sense of urgency to reduce the length of the guide so it was removed. Also because they felt that it was hanging there." The planners of this campaign, then, felt that the impacts map was not central to the main purpose of the brochure: giving tips on reducing greenhouse gas emissions. Finally, an Australian Conservation Foundation campaigner went so far as to question whether impacts on nature, as defined by scientific research, should really play a role in environmental campaigning. She argued:

> Environmentalism has been a bit marginalized. NGO groups have tended to take a conservation mentality, like protecting the last wilderness we've got like through locking up precious areas. I don't disagree with trying to conserve but if that's the only strategy we're not

> going to be able to resolve environmental issues because our impact as a society has to do with the way we use resources and the way we're operating in our lives and in our cities.

As a result, the public materials for the Australian Conservation Foundation's campaign GreenHome do not focus on science-determined impacts on nature.

Disappearing Science in Daily Life

Although climate change science plays a marginal role in campaign publications, it is present to a limited degree, as seen in the earlier discussion of scientific data and impacts. In the daily lives of campaigners, however, the situation is quite different. I conducted fieldwork in the offices of several of these campaigns. Before this fieldwork, I read many examples of campaign brochures, press releases, websites, and other public materials. I also followed the media debate around climate change science. As well, I read the literature on the engagement with science of social movements (e.g. Epstein 1996; Yearley 1996) and states (e.g. Jasanoff 1990; Ezrahi 1990; Mukerji 1989). All of these led me to expect that the work of climate change campaigners would be centrally concerned with climate change science. Much to my surprise, this was not the case. Frequently days and days would go by with no mention of climate change science at all. I sat in on planning meetings and helped developed campaign strategies. I ate lunch with the campaigners and talked to them about their work. I interviewed all of the people responsible for putting together the campaign materials. Throughout all of this interaction, climate change science was

almost never mentioned. In interviews, I left the questions about climate change science for last, to see if the campaigners would bring it up on their own. They almost never did. When I asked them about climate change science, they were able to articulate a response, but those responses either briefly mentioned the science element of the brochures or else were so different from their usual talk that it was clear that they were putting together an answer solely for my benefit. For example, a One-Tonne Challenge campaigner, after much prompting, responded as follows:

> In Canada we don't have this science tradition culture in our background, why we don't have a lot of people studying science, but we need in some place to reconcile people with science because science explains lots of stuff. So water problems, environmental problems are the science. … But science doesn't really always make people take action. Sometimes knowing the impacts of these problems is something that makes you move into action. How it affects me where I live, for example, people ask these questions and are more willing to do something instead of it just being science related.

This campaigner, who was very articulate in discussing the central concerns of his campaign, has trouble talking about science because it is not part of his usual practices. He is not alone; for all practical purposes, climate change science was not present in the daily lives of campaigners.

Conclusion

This chapter has examined the role of climate change science in public campaigns. Campaigners seek to make climate change visible by presenting pieces of

scientific data as representative of the problem. They also try to motivate the public to take action, especially by presenting the predicted impacts of climate change on natural icons, human health, and the economy. Why do campaigners use this approach to motivating the public? In part, they seek to increase their own credibility by relying on trustworthy scientists, scientific organizations, and matters of fact. They also rely on climate change science when they view the public as essentially similar in nature to themselves; since campaigners are motivated by the impacts of climate change, they hope that the public will respond with a level of concern that matches their own. I described this method of campaigning as an enlightenment model of public understanding of science. Campaigners frame the problem as one of increasing the public's understanding of science; they view the public as an audience that, like campaigners themselves, is capable of understanding and responding in a moral fashion.

In practice, though, climate change science is marginal in campaign publications and almost absent in the daily lives of campaigners. Why does climate change science disappear, given that it can provide credibility for the campaigns and motivation for the public? First, campaigners do not need to discuss climate change science because it is completely taken for granted, accepted, and tacitly understood. Of course this is the case in terms of the media controversy over scientific consensus; the campaigners "side" with the scientific majority and not the climate skeptics. However, this is also true for the other aspects of climate change's science-based nature. The data that represents the problem and the predictions of "impacts" are so

fundamental to campaigners' understanding of science that they do not need to discuss it any further. In the next chapter, I will discuss a second reason for campaigners' shift away from climate change science as a motivation. Although campaigners consider climate change science to be credible, they are beginning to doubt whether it is sufficiently motivational for the public. As we will see in the next chapter, campaigners are turning instead to a social science called "social marketing."

CHAPTER 4

CAMPAIGNS AND THE SCIENCE OF SOCIAL CHANGE

Introduction

In the last chapter, I examined how campaigners use climate change science to motivate the public to take action on climate change. Teaching the public about the scientific evidence of environmental problems is a classic technique of the environmental movement (Carson 1962, Shellenberger and Nordhaus 2005). In the case of climate change campaigning, this method is being overtaken by a new approach. Campaigners are beginning to question whether it is necessary or desirable to teach the public about climate change science. Instead, campaigners are beginning to rely on a social science that directly addresses the question of how to motivate the public to take action. It is a social science of behaviour change, known as "social marketing." The debate over whether the public really needs to understand climate change science can be illustrated by the contrast between David Suzuki's thoughts on this issue and the campaigners' thoughts. Suzuki is the figurehead of his organization but is not involved in running campaigns day-to-day. Suzuki was absolutely outraged by the suggestion that people could take action on climate change without understanding the science behind it:

> Is it important for the public to understand scientific research on climate change?
>
> Suzuki: Well, come on. In a democracy, how can you have any hope of controlling the important forces shaping your life if you're not informed in a democratic way on that? I mean an informed public is the basis of a democracy that works. Now unfortunately we don't really have a democracy. The reality is that the best way of countering the forces of selfishness, profit and ignorance are an informed public.
>
> But, specifically, is it important to understand the *science* if they were motivated just to take action on climate change without understanding the science, would that be sufficient?
>
> Suzuki: I'm sorry, these questions are so puerile. How can anyone not say of course?! Is the suggestion that there is a possibility that acting on an issue in ignorance is preferred to acting in an informed way? Of course you have to understand the science.

Yet Suzuki's indignation is out of step with the general trend of climate change campaigning. A One-Tonne Challenge campaigner argued almost the opposite position to Suzuki:

> It's a little bit difficult to fathom climate change greenhouse gas concentrations … The complexity of tonnages of air molecules is a detail that *people don't need to know* … It is something you'd think you have to explain but you don't, and I can present to you a key analogy … You put your recyclables in your blue box and you put it at the side of the road. You are not explained landfill life cycles and the rate at which landfills are filling up and the embodied energy in recyclable products and the amount of energy that you save from doing this … Every week they put stuff in the recycling bin and they put it at the corner, and it is almost a social responsibility … *You don't care why you are doing it* you just do it because you know you should. (emphases added)

In this chapter, I discuss the origins and practices of social marketing. I then argue that social marketing involves quite a different configuration of campaigners and

expertise, and a different relationship between campaigners and their audiences, as compared to relying on climate change science for motivation. I conclude by noting the pervasiveness of social marketing but also the institutional and national differences in its predominance.

The Origins of Social Marketing

Two distinctive traditions have contributed to the field of social marketing in environmental campaigning.[14] The first tradition applies marketing techniques to sell social goals rather than consumer products. In the words of a One-Tonne Challenge campaigner, this variant of social marketing is "marketing applied to social issues … making things appealing and fun and engaging people like Coke is doing with beverage and like Nike is also doing with clothes." This approach usually involves running advertising campaigns to promote objectives such as quitting smoking, exercising, or saving energy.

The second tradition originates in the academic psychology literature. Early work was explicitly behaviourist, arguing that the researcher could control a subject's response by applying the appropriate stimulus. Researchers conducted laboratory experiments to test the effectiveness of their "behavior engineering" (Geller 1989, p.

[14] The term social marketing can be used quite differently in other fields, such as health promotion, and in institutions other than climate change campaigns. In this chapter, I am describing social marketing specifically as it appears in Canadian and Australian climate change campaigning. See Reid 2004 and Ryan and Gamson 2006 for other uses of the term.

20). This tradition continued on in the psychology literature even after the explicitly behaviourist commitments were dropped. Today, the psychologists still seek to change behaviour by manipulating relevant psychological factors. For example, in the popular "foot-in-the-door" studies, subjects are asked to fulfill a small request, and later asked for a major favour. According to the literature, these subjects are more likely to fulfill the major request than a control group, due to their psychological need to appear consistent (Burger and Caldwell 2003, Burger 1999, Beaman 1983, Pliner 1974). A sub-group of these authors are social psychologists who want to include social factors as well as psychological ones. A social psychological claim in this vein, for instance, is that subjects are more likely to believe what they are told and change their behaviour accordingly if the information comes from a source within their social network (Burn 1991, Costanzo et al. 1986).

One of the psychologists currently leading this field is Canadian Doug McKenzie-Mohr, who is quite influential among Canadian and Australian campaigners (McKenzie-Mohr & Associates 2005; McKenzie-Mohr 2000a, 2000b; McKenzie-Mohr and Smith 1999). He refers to his approach as "community-based social marketing" (CBSM), which "emphasizes direct contact among community members and the removal of structural barriers, since research suggests that such approaches are often most likely to bring about behaviour change" (Cullbridge 2005). According to McKenzie-Mohr, CBSM operates against two popular assumptions about behaviour change that are incorrect (see also Costanzo et al. 1986). First, he argues that changing knowledge and attitudes does not change behaviour. He cites

various studies as evidence. One study showed that when interviewed, 94% of participants said that it was their responsibility to pick up litter but only 2% actually picked up litter planted by the experimenter (Bickman 1972, qtd. in McKenzie-Mohr 2000b). The second myth is that people act in their rational self-interest. McKenzie-Mohr argues that many campaigns are premised on the assumption that people study the information and then act based on what will save them the most money. In contrast, he cites evidence such as that people undervalue the long-term savings of energy-saving devices. What alternative approach does McKenzie-Mohr suggest? CBSM consists of five main "pragmatic" steps that campaigners can follow: select behaviours, identify barriers, design a strategy to overcome the barriers, pilot the strategy, and evaluate the impact of the program. Rather than running advertisements, campaigners should facilitate face-to-face interactions (McKenzie-Mohr 2000b, Cullbridge 2005).

The distinction above between the marketing and psychological traditions is useful analytically. In practice, though, the situation is more complex. Some academics have explicitly tried to merge these two traditions (Geller 1989). Some practitioners, such as at the One-Tonne Challenge, have merged the two in practice by selecting certain elements of each approach. Furthermore, many campaigners use the terms "social marketing," "behaviour change," and "CBSM" interchangeably. Here I have used the term "social marketing" to refer to this community of practice that is seeking, in diverse ways, to change behaviour by following systematic principles,

whether they originate explicitly from marketing theory, psychology, or a hybrid of the two.

Social marketing thus differs significantly from other philosophies of campaigning. As will be discussed further below, the social marketing approach is clearly different from relying on climate change science as motivation. While social marketing deals directly with social change, the climate change science approach trusts that social change will emerge as a result of increased public understanding. Second, social marketing differs from other consciousness-altering approaches because it does not try to change ideologies or attitudes. Social movements sometimes rely on a Marxist logic of false consciousness. Just as the proletariat may not realize its objective interests because it is corrupted by bourgeois ideologies, so too social movements hope that they will gain constituents by helping them to see their own interests. Framing analysis describes a similar process using the term "frame transformation," which "redefines activities, events, and biographies that are already meaningful from the point of view of some primary framework, in terms of another framework, such that they are now 'seen by the participants to be something quite else'" (Snow et al. 1986, p.474). Specifically in the environmental movement, an approach of this kind is to cultivate a "green consciousness," which "means that the way people experience and regard the world in which they live, and each other, is the key to green change" (Dryzek 2005, p.181). In contrast, social marketing does not discuss or try to shift ideologies. Instead, social marketing endeavours to leapfrog the public's beliefs and move directly to changing behaviours. Finally, campaigners see

social marketing as a scientific approach to campaigning, as opposed to their past reliance on ad hoc experiments and previous experiences. A Cool Communities campaigner described social marketing in this way:

> Doug McKenzie-Mohr - he's a bit of a guru on this whole issue. He's kind of put the science behind behavioural change. So he's actually put a model together that is a way of running community projects so that they do actually promote behavioural change. … It's all well and good making someone think about something and it's all well and good changing someone's perceptions, but if that doesn't actually lead to change then what's the point?

Social marketing is thus a systematic social science aimed directly at creating social change.

The Practices of Social Marketing

Campaigners have set themselves a difficult task. Long-term social change is difficult to plan and achieve. Furthermore, many campaigners are well aware that they personally do not represent the public as a whole nor a representative cross-section of its groups. At times, then, they can doubt their own experience as a benchmark for assessing what types of campaigns would be effective. Social marketing is thus of great value to campaigners because it addresses two of their most pressing questions: 'Who is out there in the world?' and 'How can we persuade our audience to change?' Social marketers use a variety of techniques to create answers to these questions. The question of who is out there is addressed using social science research methodologies

and ideal types of groups. The public emerges from these techniques either as a universal aggregation of individuals, or as a collection of distinctive communities. The question of how to persuade relates directly to who the audience is. When addressing all individuals, campaigners use psychological "tools." They also invoke the values of all individuals, or of specific communities. Campaigners target groups by finding them in their social locations and tailoring their messages to the groups' characteristics. For both individuals and groups, campaigners examine exemplars of past campaigns.

Who Is Out There?

Campaigners use social science research methodologies to discover the characteristics of their audiences. At Cool Communities, "We did some telephone interviews and surveys that gave us some information about talking about greenhouse and why so many people were confused about it and what might motivate them to change. … And I think people were surprised to hear how much household emissions contribute to Australia's target." Although this campaign is organized in terms of communities, their surveys were samples representing the population as a whole. The One-Tonne Challenge also used surveys, but these identified specific groups:

> We also had some research that showed us that from an attitude point of view there were some different groups. There was the group that was sort of the keeners who really thought it was important to protect the environment and would certainly do this and there was another group that was a bit bigger who were about a third of the population who thought, "Well I might reduce my energy use but climate change is not

> that important to me, it is more about saving money and giving us all cleaner air." It was other benefits that were different from climate change.

Focus groups are another social science methodology that campaigners use to understand their audience. At the One-Tonne Challenge, while the surveys created groups of people, the focus groups represented an idealized Canadian citizen, unaffiliated with a group and able to speak for the population as a whole:

> We've held a number of focus group sessions throughout this calendar year since the time the One-Tonne Challenge was first raised as we look to the public to see whether there would be some interest and support. And those focus groups have shown us very clearly that Canadians like the tangible aspect of the goal. . . . In fact we've asked Canadians to chose between the One-Tonne Challenge and the Climate Change Challenge they to a very large extent with more favour to the One-Tonne Challenge.

In other cases, though, the focus groups identified particular clusters of people: "We did some focus group testing and Canadians said we really want to know how much we produce specifically because everyone has a different lifestyle. Some people live in apartments, some people own homes, some people own SUVs, some people take the bus."

These formal social scientific methods are not only the purview of the governments. Although they are expensive, the environment groups can also use some forms of these techniques. The Nature Challenge emailed a sample of its participants and asked them to fill in an online survey of questions such as how concerned they are about various environmental problems (David Suzuki Foundation 2004). GreenHome relied on qualitative social science research into a socioeconomic group known as "downshifters." This term refers to people who have voluntarily

chosen to reduce their hours of work and/or their income in order to slow down, and spend more time with their families or engaged in activities that are meaningful to them. Various social scientists are researching this phenomenon (Maniates 2002, Hamilton and Mail 2003, Hamilton 2003, Breakspear and Hamilton 2004), so the term is a relatively formalized one. Clive Hamilton, from the think tank The Australia Institute, has reported that around 25% of people, across a range of income levels in the UK and Australia have downshifted (Hamilton and Mail 2003, Hamilton 2003). He has collaborated in the past with ACF, and the staff working on GreenHome are very familiar with his research. A GreenHome campaigner explains that she uses the term to understand her audience, by analyzing "the cultural aspect of environmental attitudes and people's attitudes to their lifestyle, things like the movement of downshifters, the 25% of the population who have chosen to take a lower income so that they can change their lifestyle to be more meaningful or satisfying or adopting values like spending more time with their family, contributing to the community more, doing volunteer work." She also uses the category to understand her own life history and her changing goals: "I'm a downshifter in money but not hours. But yeah, I'm very big, in terms of my own shift, on reducing my consumption and moving away from the 'forces of darkness and evil' which propel you to earn more to spend more and give up your values so you can have a higher income and buy more crap. I guess as a downshifter I've worked on reducing my expectations of what I need in terms of material things." The term downshifter, then, came to her originally from a think

tank's social science research but was used to imagine the audience for her campaign and to understand her own identity.

In addition to this formalized social science research, campaigners also rely on their lay knowledge about people in general and categories of people. For example, a One-Tonne Challenge campaigner described her informal sense of national sensibilities: "[A campaigner] in our office went to look at the Australian website and I think she quite liked a lot of the visuals and the cartoons and the easy explanations. I think that culturally it was very different - they used parrots. Canadians wouldn't relate to, you know, a parrot." In terms of specific groups, also at theOne -Tonne Challenge, the "SUV-driver" represents the ultimate challenge for the campaign. The meaning of the SUV-driver is part of the unspoken assumptions of their community. SUV-drivers do not care about the environment. Yet they are a good benchmark of the campaign, for if the campaigners can convince this group to give up their high-emitting SUVs, then they will have succeeded. A One-Tonne Challenge campaigner described how she was developing a section of the website where participants could post comments. She hoped someone would write in and say "We are the Parker family from Manitoba and we decided to get rid of our SUV and my wife's going to take the bus." The SUV-driver category helps the campaigners define the challenge of their work and also what it will mean to succeed. This category helps define the campaigners' identity, but in the opposite sense than downshifters at GreenHome, in that they are *not* SUV drivers. Unlike the downshifter, the SUV-driver does not have a formal definition nor a connection to the academic literature. Rather, the SUV-

driver is a type from the broader culture that the One-Tonne Challenge campaigners endow with a particular meaning for their campaign.

How To Persuade Our Audience?

The question of how to persuade the audience follows directly from the question of who the audience is. Social marketing offers different answers for universal individuals than for groups. Individuals can be persuaded using psychological tools. Groups can be reached by targetting messages to the group's specific characteristics. In addition, campaigners analyze exemplars of past campaigns, from the social marketing literature and from their own experience, for clues as to what makes a campaign succeed.

The psychological social marketing articles and websites devote a great deal of time to techniques for persuading a universal individual to exhibit the desired behaviours. Often called "tools," their purpose is to translate a psychological principle into an easily adoptable element of a campaign. "Commitment" is one popular tool. The principle is that if you ask people to commit to doing something then they will feel obliged to follow through. The psychological rationale for this is the desire to appear consistent to others. The One-Tonne Challenge uses the "commitment" tool in their online emissions Calculator; the final steps involve clicking on the actions that you are planning to take (Canada 2004b). Another tool is "prompts." These are visual reminders of the action that you are supposed to take, such as a sticker above the light

switch reminding you to turn it off. Because they are based on general psychology of the human mind, these "tools" are not specific to any group. They can be applied to individuals in general.

Campaigners also try to persuade their audiences by appealing to their fundamental values. Cool Communities developed messages based on values that were presumed to belong to all Australians:

> The research suggests the strategy should be underpinned by the following values: the good housekeeper, the loving parent and the responsible member of the community. … Prudence - Good housekeeping - 'waste not, want not.' Sound family financial management = saving money. Protection - Good Parenting = protecting the environment for our children. Responsibility - Being a Responsible member of the community = 'doing my bit' to reduce greenhouse gas emissions. (Australian Greenhouse Office 2002b)

GreenHome sought to invoke the values of the group of downshifters. A campaigner imagined tailoring her message to this group as follows:

> I'm sure there are plenty of downshifters who aren't necessarily living an environmentally sustainable lifestyle but they just happen to do a lot of volunteer work or spend more time with their family. But then they still leave behind that lifestyle. But yeah, they may be more likely to respond to our messages. So for those people we might be saying that "yes, community and family and meaningful life is more important than earning big bucks and consuming, so as a part of taking on a more meaningful life reducing your impact on the environment is a key plank to that. So here's how you can do it: sell one of your cars, buy less stuff…"

In addition to values, campaigners try to target groups by finding them in their social circumstances. The Nature Challenge was focussing on a group affectionately nicknamed the "mature sisters," women aged 35 to 55. According to their research, these women are "the most active in voting, the most active in being the key decision

makers and purchasers in their family." They are also "savvy and smart and in charge of their household will end up making better decisions than men because men according to our research don't actually care, that much." The Nature Challenge campaigners imagine the mature sisters consuming popular culture products aimed at women, so they can reach them there: "We've got lots of good ideas like placing ads in Chatelaine, and In Style, Oprah, to embed our message in book clubs, gourmet clubs, golfing, digests, things like that honing down on what women in that demographic do." Similarly, the One-Tonne Challenge's SUV drivers are home owners who shop at home improvement stores, so this campaign is seeking partnerships with these types of stores to run energy efficiency promotions.

Finally, campaigners rely on exemplars of past campaigns thatthey consider successful. Some of these exemplars are generated by social marketing researchers conducting experiments. For example, one study tried to increase crosswalk use among college students (Boyce and Geller 2000). The research involved actually putting together a social marketing campaign, primarily using the tool "commitment" by asking students to sign cards promising to use crosswalks. The result of this and other similar studies were not only theoretical claims for the psychology literature, but also exemplars of social marketing campaigns. Of course, these experimental campaigns are carried out under quite different circumstances than a usual campaign because the researchers tend to have disproportionately long time lines and high budgets. Nevertheless, academics such as Doug McKenzie-Mohr who speak to campaigners promote these experiments as heuristics to guide the choices of

campaigners. Various social marketing websites also devote a great deal of space to presenting case studies form the psychology literature as exemplars (Cullbridge 2005, McKenzie-Mohr 2005).

Exemplars are not only from the literature, however. The websites also present cases of campaigns that incorporated social marketing principles and were deemed to be a success. Most vivid to the campaigners are exemplars from their own experience. They examine past campaigns that they are familiar with in order to unearth the qualities that made the campaigns a success. For the One-Tonne Challenge, recycling was the campaign most frequently cited as a success that could be emulated by their campaign. This campaigner's story is a classic example of this process:

> When I was a kid we would throw things in the street and it wasn't a big deal for us. But later on we started recycling and then it would seem unusual to see someone throwing cans out the window of a car, you can't always see it. When you put your blue box on the street your neighbours know what you are doing. Are you recycling? Are you doing the right thing? So that stuff is interesting and it basically shows that if you provide tools and resources for people it can make a difference. The tools in this case are a box and explaining what to do with that. Climate change would be much more complex but basically you give tools and resources.

The lesson for this campaigner is that individuals will act if given the appropriate tools and resources. Exemplary past campaigns, then, are also a source of instructions as to how to pursue present campaigns.

Comparing Social Marketing and Climate Change Science in Campaigns

In its origins and practices, social marketing is notably different from using climate change science to motivate the public. Furthermore, in social marketing, the line between campaigners and experts is significantly blurred. In contrast, social marketing creates a much clearer distinction between campaigners and audiences than when campaigners use climate change science.

Campaigners and Expertise

In Chapter 3, I described how campaigners cite authoritative scientists, scientific organizations, and scientific facts to enhance the credibility of their campaigns. Implicit in this style of campaigning is a relationship between campaigners and expertise. When relying on climate change science, there is a clear demarcation between the campaigners as lay people and climate change scientists, scientific organizations, and scientific facts as based on expertise. In contrast, the approach to campaigning relying on social science is much more complex. There is a high level of integration between campaigners and social marketing academics, in terms of both personal interactions and practices. Furthermore, the line between expert and lay is blurred.

Beginning with institutions, campaigners and social marketing academics are certainly based in different kinds of organizations. However, there are numerous connections across these institutions, and the same people are often operating in many of them at once. Most basically, campaigners are based in government and non-

government organizations, and social marketing "experts" are based in universities and/or consulting companies. For example, Doug McKenzie-Mohr is a professor at St. Thomas University in New Brunswick. He also owns his own consulting company called McKenzie-Mohr & Associates. Nevertheless, there are many associations across these different institutions. The experience of a GreenHome campaigner demonstrates the connections typical of working in the social marketing world:

> My first entry into this type of theoretical research was through a course I did in my Master's at RMIT [university]. It was a course called Advocacy and Social Change and the lecturer has done a lot of social marketing campaigns himself in the past. He gave us a lot of readings and information. I guess he's quite academic and having implemented campaigns he strongly believes that you should look at the theory and the research before you do any kind of campaign. So then obviously people like Doug McKenzie-Mohr came up and his community-based social marketing research. Doug actually came out to Australia in December 2003, so I went to his workshop and found it really useful.

An environment group leader of Cool Communities took the same Master's degree at RMIT university and participated in workshops with McKenzie-Mohr. RMIT university also offers public seminars on social marketing aimed at the broader campaigner community. In Canada, McKenzie-Mohr was heavily involved in the government's climate change process.[15] He sat on the Public Education and Outreach Issue Table and produced various reports as a consultant for this process, including developing an entire mock campaign on climate change. These few examples illustrate that although campaigners and academics are based in different organizations, they spend a fair amount of time in each other's worlds.

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[15] In the lead up to ratifying the Kyoto Protocol, the Canadian government created 16 "issue tables" comprised of experts from government, non-government organizations, industry, and academia. Each issue table discussed a topic such as agriculture, Kyoto mechanisms, and public education and outreach. It was the public education and outreach issue table that discussed social marketing.

There are also commonalities between the practices of campaigners and social marketing academics. For example, although academics are more concerned about publishing their results, staff members from both Cool Communities and GreenHome were independently collaborating with different academics from the Australian National University towards the publication of journal articles or scholarly books. In Canada, the government encouraged and even funded McKenzie-Mohr and other social marketing consults to publish academic research on the web. In 1996, the government's National Round Table on the Environment and the Economy (NRTEE) sponsored McKenzie-Mohr to do a series of workshops and develop a booklet. According to him, "these two actions by NRTEE made this information readily accessible to many Canadian program planners" (McKenzie-Mohr 2000a, p. 532). NRTEE then published a workbook of successful case studies that was put together by the people who were launching Ottawa's first Green Community initiative (Cullbridge 2005). The booklet was designed so that it could evolve into a social marketing website. The partners of the resulting website <http://www.toolsofchange.com> are Health Canada, Environment Canada, Natural Resources Canada, NRTEE, the Federation of Canadian Municipalities, and Cullbridge Marketing and Communication, a consulting company. As described above, another common practice between campaigners and social marketing academics is to look at past campaigns as exemplars. Because social marketing academics conduct campaigns for research purposes, they look to their lived experiences for lessons that may be applicable to future campaigns (e.g. Burn 1991, Boyce and Geller 2000, McKenzie-

Mohr & Associates 2005); campaigners do the same. As a result of their common channels of communication, campaigners and social marketing academics can learn from each other's experiences.

These interactions and commonalities demonstrate that there is not a clear boundary between "lay" campaigners and "expert" academics, as there is in the case of climate change science in campaigns (Chapter 3). On the one hand, campaigners and academics are based in different institutions, and they may emphasize different practices. However, as we have seen, they regularly interact, collaborate, participate in each other's activities, and undertake the same sorts of practices. Since campaigners do not have the external markers of academic expertise, such as a university position or a publishing record, campaigners could be seen as lay experts. Epstein defined the category of lay expert in his work on AIDS activists (1995, 1996). According to Epstein, AIDS activists were able to construct themselves as lay experts by pursuing four tactics. First, they acquired "cultural competence" by "learning the language and culture of medical science" (1995, p.417). Once they acquired a familiarity with the language of biomedicine, the activists found they could get access to the institutions of biomedicine. Due to the activists' cultural competence, researchers "felt compelled, by their own norms of discourse and behavior, to consider activist arguments on their merits" (p.419). The second tactic was to construct themselves as representatives of people with AIDS or HIV. Because researchers needed people with AIDS and HIV to enroll in clinical trials, the activists "constructed themselves as an 'obligatory passage point'" (p.420). The third tactic involved

“yoking together methodological (or epistemological) arguments and moral (or political) arguments so as to monopolize different forms of credibility in different domains” (p.420). Finally, the activists took advantage of existing controversies over clinical research. Through “the takingof sides in pre-existing debates,”activists could enroll allies in their cause (p.421).

Similarly, campaigners have acquired cultural competence in academic social marketing through actions such as reading publications, attending workshops, and enrolling in university courses. Because academic social marketers want to have an impact on the broader practices of campaigning, campaigners are "obligatory passage points" for influencing campaigns (Latour 1988). However, there are also important differences between campaigners and the AIDS activists studied by Epstein. Both campaigners and social marketing academics draw on the credibility of moral arguments because they share the goal of changing behaviour to achieve the normative goal of environmental sustainability. Furthermore, social science fields are more open to outside participation than medical or natural sciences (Bourdieu 1975, 1998; Bourdieu and Wacquant 1992; Giddens 1990; Hacking 1995). Finally, it is not completely clear in this case as to who are the lay people and who are the experts. While academics have institutional markers of expertise, such as their advanced degrees and university affiliations, campaigners are "experts" in running actual campaigns. When academics run campaigns as part of their research, they are in this regard much like inexperienced lay people. In the case of social science in campaigns, then, the lay/expert divide between campaigners and academics is a blurred one.

However, as the next section will discuss, social marketing invokes a much stronger lay/expert division between campaigners and their audiences.

Campaigners and their Audiences

There are striking differences in the relationship between campaigners and their audiences when the campaigners are using climate change science as opposed to using social marketing. As we saw in Chapter 3, in the case of climate change science, the knowledge of campaigners and the public is in principle the same. Neither campaigners nor the public are experts on climate change science, but they are capable of learning enough to precipitate action. In Chapter 3, I described the relationship as an enlightenment approach to public understanding of science (Elam and Bertilsson 2003). Climate change scientists are the experts, and their knowledge can be passed on to the public, with the campaigners as conduits and intermediaries for this information. In contrast, in the case of social marketing, the knowledge of campaigners and their audiences is fundamentally different. Only the campaigners have access to, participate in, and understand the social science of social marketing. Indeed, only campaigners are aware that their campaigns are based on social marketing principles. Furthermore, according to social marketing research, knowledge does not change behaviour, so campaigners must target behaviour directly (e.g. McKenzie-Mohr 2000a). By using social marketing, campaigners seek to influence the public's behaviour by relying on their audiences' aspirations, rather than

by focussing on the campaigners' own goals. A One-Tonne Challenge campaigner articulated this contrast between a social marketing and climate change science based approach: "We want people to act so we are going to incorporate health benefits, saving money, all the other benefits that they'll get too so that somehow we'll get the people to act even if they don't understand the science of it." While the campaigners are preoccupied with social marketing, then, the public is supposed to know and do other things.

What are the public's preoccupations, according to campaigners' social marketing approach? First, while the campaigners are concerned with the large-scale, long-term, and abstract problem of climate change, the public is situated in daily concerns. An ACF climate change explained her view of the public as follows:

> Most people aren't really interested in the environment. They're really busy in their own life, doing their own thing. You know, working their job, trying to promote their career prospects, and balancing that with their family. People are very very busy and have all kinds of aspirations which are not to do with the environment. So I suppose what I do is to try to see what's important to them and focus on where we've got commonalities.

Second, while the campaigners are concerned about impending environmental destruction, the public is pictured as preferring positive messages. A One-Tonne Challenge campaigner contrasted the negativity of campaigning based on climate change with the positivity of social marketing:

> Avoiding the basic problem of the idea that climate change leads us to "doomsday" but more that individuals in their daily lives can do stuff [that's] interesting. For example, walking can be a really fun and positive experience instead of driving five blocks, or two blocks to go to the grocery store or something like this. It must be appealing and it also make[s] you want to know more when you see it and hear of the

> One-Tonne Challenge want to take action and wonder what kind of action. So it can also be appealing by incentive … the value of giving incentives to encourage them to change their actions. Profiling good success stories, profiling people who have done their part, that kind of stuff. So reinforcing the good choice instead of having some punishment.[16]

What are the actions that the public is supposed to undertake, according to this model? There is a great deal of consensus on the types of tasks that these social marketing campaigns recommend. The public's tasks are "personal," "practical," and "measurable." "Personal" means that they refer to the person's immediate sphere of influence in their private lives. At the One-Tonne Challenge, for example, the tasks are divided into "at home" and "on the road." "Practical" means that the tasks are concrete and visible. There are two types of practical actions: "device-oriented" and "ongoing changes in lifestyle" (Costanzo et al. 1986). Device-oriented actions usually involve purchasing environmentally-friendly technologies such as energy efficient appliances, hybrid cars, or low-flow showerheads. Lifestyle-changing actions involve repeated behaviours such as turning out the lights, walking to work, or taking shorter showers. Finally, the campaigns favour tasks that are measurable. As we will see in Chapter 5, a quantitative element plays a prominent role in all four of the campaigns. For example, the One-Tonne Challenge, Nature Challenge, and GreenHome all offer online calculators so that participants can calculate their current environmental impact and how to improve upon it. Cool Communities and GreenHome set quantitative targets to serve as benchmarks for the programs' success.

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[16] This echoes one of the criticisms of the environmental movement made by Shellenberger and Nordhaus in their article "Death of Environmentalism" (2005). They accuse environmentalists of making negative "I have a nightmare" speeches instead of providing visions or dreams (as did Martin Luther King Jr.) of their desired future.

A Cool Communities campaigner summarized this social marketing relationship between campaigners and their audiences in his story of visiting a demonstration home in Alice Springs.

> It wasn't preaching to the converted, and it wasn't even preaching. Instead it was … saying: "Here's an ordinary house just like yours!" … There was a family living there, and the family had said you can come in and retrofit it, and we'll have an open day on the first Sunday of every month. It was fantastic! It was great. People saw the shade cloths, and the grey water use, and the different colours on the roof which was affecting the temperature, and all the things that were appropriate for a Cool Communities house in a tropical climate. I just thought that was great. It seemed to me to sum up why Cool Communities was really a success. Because it was practical, down to earth, meeting people where *they* were. Sure, we want a behavior change, and we wanted people to change some of the things they were doing, but it was meeting them on their own terms.

Because they are concerned about climate change, campaigners want behaviour change, and they are using social marketing principles to try to get it. They should use positive messages, not "preaching," and they should meet people "on their own terms," in their social locations. The public is concerned about their daily lives and the campaigners thus ask them to take actions that are personal, practical, and measurable.

Who Uses Social Marketing, and Why?

One of the most striking features of social marketing is its pervasiveness. Despite their institutional and national differences, all four campaigns were strongly in favour of social marketing as an approach to campaigning. Why? Most importantly,

social marketing systematically answers campaigners' central question: how can we change the world? When campaigners use climate change science as a motivation, the focus is on the impacts of climate change on nature and humans. When campaigners use social marketing, though, the focus is directly on motivation itself. Social marketing offers the promise of a direct link between campaigners' work and individuals' behaviours. Furthermore, social marketing provides an opportunity to move beyond controversies over climate change. Because the tasks of the public are personal, practical, and based on existing values, campaigners can proceed without needing to gain consensus. Finally, because social marketing is based on documented principles, campaigners can provide evidence to their detractors that their approach is credible and effective. These reasons for valuing social marketing, though, are more prominent in some kinds of organizations than others; indeed, social marketing itself is more dominant at some campaigns compared to others.

Institutional Differences

The major difference between government and non-government social marketing campaigns centres around the tasks of the public. I described the tasks of the public in a social marketing campaign as personal, practical, and measurable. When using climate change science as a motivation, though, the type of task is more open. How should the public respond when told that climate change will endanger polar bears and penguins? They could write a letter to their politician, or they could

switch to energy efficient light bulbs. When campaigns rely on social marketing, though, the tasks of the public are almost entirely of the light bulb-changing variety. As discussed above, this is because social marketers believe that knowledge does not change behaviour and because the public is seen as more preoccupied with their daily lives and more receptive to positive messages. However, while this is true of all four cases, the non-government campaigns do try to add on a political lobbying element to the public's personal, practical, and measurable tasks.

One out of the ten steps of the Nature Challenge, then, is to "Stay involved and get informed!". Unlike the other nine personal, practical, and measurable steps, this step involves learning about the environment and convincing others to change as well: "Although each of us can reduce our impact on nature, we're limited in what we can do as individuals. But as employees in companies and informed citizens, we can influence corporations and various levels of government to make environmentally sustainable choices. A healthier environment isn't possible unless we all get involved" (David Suzuki Foundation 2005).

GreenHome also adds an explicitly political angle to their social marketing. In the development of this campaign, the ACF managers wanted to ensure that the campaign would contribute to greater political activism on the part of the participants. They hoped that the campaign would expand their political clout in two ways. First, they hoped that the participants in GreenHome would widen their constituency base and become a gateway for more people to become involved in the environmental movement. Second, they included within GreenHome not only personal, practical,

and measurable actions such as changing light bulbs, but also political lobbying, such as writing letters to politicians and industry. They hoped that GreenHome would create a mobilized constituency that they could call upon when the politics of the day required action on a particular issue. As one GreenHome campaigner explained, "The second vision of our project which is the more political engagement level, a step above the more practical steps at the household level where people engage in campaigns in some way, take action on a political level whether that be approaching their local member of parliament or getting involved in environmental campaigns but also things like consumer campaigns."

This lobbying element of the non-government campaigns will be discussed further in chapters 5, 6, and 7. However, for our purposes in this chapter, I will simply note that this political lobbying is an "add on" to social marketing principles. The focus of the social marketing type of campaign is elsewhere, but some non-government campaigners hope to supplement the campaign with a dose of old-fashioned activism.

National Differences

There are also national differences in the importance of social marketing. Broadly speaking, the Australian campaigns rely more heavily on social marketing than the Canadian ones do. Beginning with the government campaign, the Canadian government played a strong role in funding social marketing research. However, the

One-Tonne Challenge did not stick very closely to social marketing principles. McKenzie-Mohr wrote in an American psychology journal that there was a "growing understanding on the part of Canadian program planners that conventional campaigns, which rely heavily or exclusively on media advertising, can be effective in creating public awareness and altering attitudes but are limited in their ability to foster behavior change" (2000a, p. 532). In the One-Tonne Challenge, though, advertising played a major role. In a public letter to the Environment Minister, the Executive Director of the Canadian Climate Action Network John Bennett criticized the One-Tonne Challenge on these grounds. He wrote,

> We are very concerned with the sudden and unexpected dropping of investment in community projects by the federal government since ratifying the Kyoto Protocol last December. It appears Environment Canada intends to spend as much as $40 million on advertising and less that $3 million on community projects to address climate change through Ecoaction. … There is a preponderance of research on the lack of success of public awareness campaigns in bringing about the behaviour change needed to meet the environmental goals such as the one ton [sic] challenge. Yet, Environment Canada appears to be intent on ignoring those findings and the experience of hundreds of grassroots organizations. (Bennett 2003)

Bennett is particularly concerned that environment groups will lose funding through this model. The Australian government campaigners, though, also expressed doubts, in classic social marketing terms, about using advertising.

The Australian Greenhouse Office manager of Cool Communities contrasted her social marketing approach with a public information campaign, of the type that would be typical when relying on climate change science.

> I think it was in part to prove to the organization that it is possible to have measurable greenhouse gas abatement, and not to fall into that

> trap of saying "household programs are nice and they're politically popular, but they're not actually useful or effective." I think that was the mindset from at least some of those in the federal bureaucracy. I think they equated household programs with public information campaigns. And certainly we didn't want a public information campaign because there's enough information out there on how long you need to do it and how much it costs before you get any shifting in behaviours. So the choice of a social marketing approach and a behaviour change program was what we thought would be possible but also most effective. I mean we could have blown all of the money in a very short time with an information campaign, which probably would have been easier to manage, but it definitely wouldn't have been as effective.

The founder of ACF's GreenHome campaign used similar logic. She relied heavily on social marketing research to prove to her colleagues and managers that a program aimed at individual action could be worthwhile and effective. For their part, ACF managers were receptive to her arguments because, with the grip on power of the conservative Howard government, they were turning to new arenas to conduct their work (Doyle 2000). Thus while ACF has traditionally worked closely with the national government, they were now trying other techniques including engaging industry, lobbying state governments, and a social marketing campaign for individual action.

I argued above that social marketing provided systematic evidence to help campaigners fight their detractors. This type of work is more important for the Australian campaigns than for the Canadian ones. Because the Howard government rejected Kyoto, the Australian government campaigners tried to rely on social marketing to protect their campaign aimed at the public. (They were ultimately unsuccessful because the campaign was cancelled in 2004). At ACF, the GreenHome

campaigner used social marketing both as an avenue to pursue in the face of a hostile national government and as a way to defend her idea from her somewhat skeptical managers. In contrast, because the One-Tonne Challenge campaigners had the support of the political leadership, in the context of Canada's ratification of Kyoto, they did not need to stick closely to social marketing principles.

Conclusion

This chapter has examined how climate change campaigners have turned to the social science of social marketing. Social marketing is aimed directly at answering two central questions that campaigners have: who is out there, and how can we persuade them to change their behaviour? I argued that social marketing establishes a different configuration between campaigners and expertise. When campaigning based on climate change science, campaigners rely on expert individuals, organizations, and facts. When using social marketing, though, campaigners interact heavily with social marketing researchers from academia; they also undertake many of the same practices. Furthermore, while academics may have external markers of expertise, such as university affiliations and advanced degrees, campaigners can be seen as experts in running actual campaigns. I also argued that social marketing is premised on a very different relationship between campaigners and their audiences. When using climate change science, campaigners view the public as essential similar in nature to

themselves, and they take an enlightenment, public understanding of science approach. In contrast, when using social marketing, the public is fundamentally different from the campaigners. While campaigners are preoccupied with climate change, the public is focussed on everyday affairs and prefers to hear positive messages. In keeping with this view of the public, campaigners ask individuals to undertake tasks that are personal, practical, and measurable. Finally, I noted that while social marketing played an important role in all the campaigns, there were also institutional and national differences. The non-government campaigns, in keeping with their traditional activist approaches, added a lobbying component to the tasks of the public. The Australian campaigns, working in a more hostile political environment, relied more heavily on social marketing as a way to defend themselves against their detractors.

The case of social marketing in climate change campaigns holds two important lessons for public participation. First, knowledge and participation in science-related public issues such as climate change are not necessarily linked. In the case of climate change science as a motivation, both campaigners and the public are motivated to take action as a result of their understanding of climate change science. In the case of social marketing, though, the campaigners understand and indeed participate in the creation of this social science. The public, though, understands neither social marketing nor climate change science; instead, campaigners seek to change individuals' behaviours without changing individuals' knowledge or beliefs. Public participation, in this case, is decoupled from public understanding. Second, the type of science used in the campaigns is intertwined with campaigners' views of the public.

If the problem is framed as one of teaching the public about climate change, then the public is ignorant, but also rational and moral. If the problem is framed as one of changing behaviour, then the public is preoccupied with its own pre-existing concerns and values. By comparing the two approaches to campaigning, then, we can see that how campaigners framed the problem they were trying to solve was inextricably intertwined with how they envisaged the public they were trying to persuade.

CHAPTER 5

QUANTIFICATION

Introduction

The social world of climate change campaigning operates in what Nikolas Rose has termed a "public habitat of numbers" (1999, p.228). In other words, campaigners swim in a sea of numbers; to move competently in their world requires a familiarity with particular types of numbers and their moral significance. For example, the quantity of a metric tonne of greenhouse gas is central to the work of many campaigners. The goal of their campaigns is often to reduce greenhouse gas emissions by a particular quantity of tonnes; at least to a certain extent, their feeling of the significance of their work is framed in terms of tonnes as well. One campaigner at Cool Communities believed that participating in the program was meaningful for low income households in part because they could halve their energy bills, but also in part because they could feel proud that they had reduced their emissions from 30 to 15 tonnes per year. Reducing the number of tonnes, then, is both the goal of the campaign, a source of her job satisfaction, and her interpretation of the meaningfulness of participating in the program for her audience. "Tonnes" are only one of many types of numbers that campaigners have constantly on their lips; they speak of opinion poll numbers, policy targets, funding dollars, participation rates, and

many other numbers as well. If we include campaigning under the broad category of government, in Foucault's sense of the "conduct of conduct," then this should come as no great surprise. Numerous authors have described the centrality of numbers to the task of governing (Curtis 2001; Rose 1999; Porter 1995; Foucault 1991; Hacking 1990).

This chapter examines the prominent place of quantification in climate change campaigns. I begin by tracing the origins of certain significant campaign numbers to the campaigns' engagement with the natural science of climate change (Chapter 3) and the social science of social marketing (Chapter 4). I then argue that these quantities are qualitatively different. In particular, I focus on the different ways that campaigners use numbers: for lobbying, for legitimacy, and as part of their identity. I then turn to numbers that are primarily for the public's use. I argue that these numbers try to shape individuals' conduct according to the campaigns' normative goals. Finally, I conclude by suggesting that quantification plays a role in the constitution of different visions of citizenship. This chapter thus serves as a bridge between the two previous and the two following chapters, connecting the uses of science with the politics of governance.

Numbers from Natural and Social Sciences

The past two chapters have examined the role of the natural science of climate change and the social science of social marketing in climate change campaigns. In this section, I explore how these sciences have left a quantitative legacy. I first describe how international climate change science and politics makes its way into public campaigns, focussing on the "one tonne" at the heart of the One-Tonne Challenge. I also touch on ACF's climate change campaign's interaction with the Australian Greenhouse Office over these kinds of numbers. Second, I show how other important campaign numbers originate in social marketing. In particular, I focus on the different ways that campaigns measure their success.

Climate Change Numbers: From International Negotiations to Campaigns

One of the most fundamental outcomes of international climate change negotiations was the national targets for reducing emissions. When the Kyoto Protocol was signed[17] in 1997, each developed[18] country agreed to a specific target amount by which they must reduce emissions by 2012. Canada agreed to reduce emissions by 6% below 1990 levels. Australia's target is to reduce emissions to 8% *above* 1990 levels, which is still a reduction as compared to Australia's projected emissions increases were they not to take any action on climate change at all. On

[17] The Protocol was signed in 1997 but did not come into effect until 2005. The reason for this delay is that countries must ratify the agreement, in addition to signing it, for the treaty to come into effect.
[18] I am using the term "developed" as shorthand for the official designation in the treaty of "Annex I" countries (UNFCCC 1997).

average, the developed countries are to reduce their total emissions by 5.2% below 1990 levels by 2012 (Kay 1998, Environment Canada 2006).

These targets raise a basic question. What quantity of greenhouse gases does each country emit? This is obviously quite a difficult question to answer. First of all, the countries must agree through negotiations on a common method for measuring and counting emissions. Second, each country must analyze their entire national economy and society for sources of emissions. Third, since the objective is to reduce emissions over time, the quantities of emissions produced by each country must constantly be updated. Finally, there must be at least some basic form of accountability so that countries can monitor each other's progress. The effort to address these issues is called the "National Greenhouse Gas Inventories Programme." Under this program, which is overseen by the Intergovernmental Panel on Climate Change (IPCC), each country must submit reports describing its current greenhouse gas emissions.

This process can be a contentious one. The Australian Minister for the Environment and Heritage and the Minister for Industry, Tourism and Resources jointly issued a press release in April 2004, stating that according to the recently completed 2002 National Greenhouse Gas Inventory, Australia was on track to meet its target of 8% above 1990 levels by 2012. The press release highlighted that Australia's emissions were "just 1.3 per cent above 1990 levels, despite an increase in GDP of 41 per cent over that period" (Department of the Environment and Heritage 2004). The reason for this achievement, according to the press release, was that "the Howard Government's $1 billion investment in greenhouse gas programs is working,

and achieving significant greenhouse gas abatement compared with 'business as usual.'" These claims were immediately countered by the Australian Conservation Foundation, in a press release of its own, titled "Greenhouse Inventory: Tricks with Numbers" (Australian Conservation Foundation 2004b). ACF argued that "while factually correct, this figure takes into account the significant reduction in land clearing since 1990 (nearly 70%), resulting in a reduction in net greenhouse emissions." ACF described the agreement that Australia negotiated in Kyoto, allowing Australia to include its emissions from land clearing in its 1990 baseline (see also Hamilton 2001). ACF maintained that if land clearing was excluded from the calculations, then Australia's emissions were on the increase. They also contested the government's claim that they were taking strong action to reduce emissions. Overall, though, the press release's focus was on contesting the quantitative picture of Australia's emissions as decreasing. ACF colourfully characterized the government's numbers as follows: "It's as much a misleading statement about our real situation as saying that if you put a piece of parsley on a steak, you can call it a vegetarian meal. Yes there are some greens on the meal but it's hardly the real picture."

In addition to describing national totals of emissions, the greenhouse gas inventories also assign responsibilities for portions of emissions to different sectors, such as particular industries, transportation, residential energy use, and others. Despite the fact that they can be contested, these greenhouse gas inventories form the basis of national discussions about climate change action, in the past, present, and future. In Canada, these quantities were at the heart of the process of making a key

policy document called the *Climate Change Plan for Canada* (Canada 2002). This report was released as a precursor to the federal government ratifying the Kyoto Protocol in December 2002. The *Plan* described how different sectors would contribute to reducing Canada's overall emissions. The concept of a One-Tonne Challenge type of campaign was developed in the writing of the *Climate Change Plan for Canada*.

As a campaign name, One-Tonne Challenge is unusual. Not in it being a "Challenge," for there are many campaigns that challenge the public to achieve this or that goal, the David Suzuki Foundation's Nature Challenge being the most prominent in this genre in Canada. It is the "one tonne" that sets this campaign apart from others. When I first learned about this campaign, one of the first questions that I had was about the name. Why name a campaign after a metric quantity? Where did the name come from? Whose idea was it to give the campaign this name? During my field work and interviews, I posed these questions over and over again. Surprisingly, many of the campaigners did not have answers for these questions. Many others told an origin story for the name but these stories were rarely consistent amongst each other. The name "One-Tonne" is not merely a façade for the campaign. The idea of reducing by one tonne permeates throughout the design and implementation of the campaign. Nevertheless, the origins of the concept are unclear among the campaigners.

This confusion is an indication of an institutional divide between the policy-makers who drew up the *Plan*, working with the highest levels of civil servants and politicians in different ministries, and the Public Education and Outreach group at the

Climate Change Bureau that would ultimately be responsible for implementing the public portion of the *Plan*. It was from interviews with those civil servants who worked most closely on the *Plan*, not those working on the One-Tonne Challenge itself, that the connection between the One-Tonne name and the international climate change process became clear. During the national level negotiations, industry "stakeholders" were opposing reducing their own emissions. One way in which they framed this objection was to state that they were only giving the public what they wanted, and so if the government wanted them to reduce their emissions, the public should first be asked to reduce their own emissions. As one public servant from the Climate Change Bureau explained,

> Industry was very anxious to see as much of the kilo obligations put on the backs of others, as it were, rather than themselves. And [they] were arguing very vehemently that … addressing ourgreenhouse gas emissions should be almost entirely a demand side issue. And there really shouldn't be much concern at all on the supply side. They - and I'm making a very broad statement when I describe all of industry as a solitary voice in 'they' - but they would argue that they are merely producing what the consumer demands, what society or the markets demand.

This story about industry trying to shift responsibility from themselves to the public is also a story about how responsibility for quantities of emissions should be assigned to different groups. It was the National Greenhouse Gas Inventory process that provided a means by which quantities of emissions could be assigned to the public as a "sector." This is not an inevitable choice but rather is a particular way of analyzing the country's emissions. This way of dividing responsibilities for emissions resulted in each individual Canadian being held responsible for 5 tonnes of greenhouse gases per year.

In Australia, in contrast, the number that is used is 15 tonnes per person per year. This is not because Australians emit three times more than Canadians; rather, it reflects a different method of assigning responsibility for emissions. Another way to assign responsibility is to take the country's total emissions and divide it by the number of people. Using this method, Canadians and Australians have very similar emissions per capita (Litfin 2000, Turton 2004). However, using the method of saying that a particular amount of emissions came from individual action paved the way for asking individuals to take action to reduce emissions. For example, energy used in heating a residential home is assigned to the public rather than to the electricity company that generates the power; however, the emissions from the generation process itself are assigned to industry.

Individual Canadians, then, were assigned a specific target to which they should reduce their emissions, just like each country was assigned a national target in the Kyoto Protocol. More specifically, though, the target for individuals mirrors the targets assigned to other sectors, in two ways. First, because individuals were assigned the average amount of five tonnes, a reduction by one tonne amounts to a 20% reduction on average. This parallels the amounts for other sectors, as one policy-maker explained: "It was more or less equivalent to what other sectors were being asked so it had a lot of appeal to it in terms of being able to sell it." Furthermore, there was an aesthetic simplicity to the one tonne. By asking each individual to reduce by one tonne, the writers of the *Plan* were able to account for at least 24 and ideally as much as 31 megatonnes of emissions reductions, by multiplying one tonne by the

Canadian population of roughly 31 million people. There was also an aesthetic consideration in terms of making the number for individuals to be a round one. They felt that the 0.9 tonne or 1.5 tonne challenge would be less appealing and more difficult to communicate.

Second, the framing in terms of *tonnes* of emissions reductions parallels the language that is being used with other sectors. In other words, the use of "one tonne" allows for a process of commensuration. Commensuration, as defined by Espeland and Mitchell, is "the expression or measurement of characteristics normally represented by different units according to a common metric" (1998, p.315). They argue that commensuration is not a technical process but is rather a social task requiring organization and work. Because the One-Tonne Challenge was organized around the one tonne quantity, the campaign could be compared to emissions reductions efforts in other sectors: "And all of our programs are measured in tonnes of greenhouse gas reductions - our housing programs, our transportation programs - so it is not a big stretch. Even 20% has to equate to something. So 20% of what, well what are we measuring? Is it 20% fewer liters of gasoline, 20% fewer kilowatt hours of electricity? The one tonne is a way to bring it all together into one cohesive measurement."

There is also a pedagogical purpose to this commensuration. When asked why the campaign was framed as "one tonne," this manager described the reason in those terms: "Because of our Kyoto commitments we are living in a mega-tonne world. … Also I think frankly to help Canadians understand what we are doing with business

and industry, business and industry being measured in mega-tonne reductions." Just as the government employees truly are "living in a mega-tonne world" from their involvement with international climate change science and politics, so too the "one tonne" allows the public to be brought into the orbit of this type of number as well.

However, while "one tonne" served the purposes of commensuration and seemed natural in the campaigners' world, it also caused two kinds of difficulties. First, it was not a straightforward process to assign tonnes to emissions-reducing tasks. Second, campaigners feared that the public would balk at doing an "accounting exercise." The primary print document describing the public's tasks was called the "Tips Guide" (Canada 2004a). In the Tips Guide, each tip is coded with the letter A, B, or C, depending on the impact of the tip on greenhouse gas emissions. The reader of the Tips Guide is meant to circle the A, B, or C actions that he or she is willing to take. On the surface, this may seem like a simple classification system; however, a great deal of work is involved in this categorization. Economists at the Natural Resources ministry were given the task of assigning number values to each Tip, that is, calculating how many tonnes of greenhouse gas emissions would be saved if a person, for example, replaced their incandescent light bulbs with compact fluorescent bulbs. This led to a fair bit of controversy over how to assign these precise numbers. At the same time, the program designers were concerned that individuals would have to spend too much time on what they called "an accounting exercise," akin to doing your taxes, if they had to make too many calculations. The solution to both problems was what they called the "bucket approach," placing different tips into ranges (or

buckets) and then coding each bucket with the symbol A, B, or C. Participants only had to tally their A, B, and C actions and then use a scale to compare their "bucket" totals to their one tonne goal. The bucket approach thus solved two problems: the fear of the accounting exercise, and the difficulty of agreeing on precise values for each tip. The result, as one campaigner put it, is that individuals "are really left with more of an impression of how much they are going to reduce their [greenhouse gases] rather than getting to a specific number." While numbers such as "one tonne," then, originated in climate change science, it was part of campaigners' tasks to make these numbers fit the purposes of the campaigns.

Social Marketing Numbers: Cool Communities

In the last chapter, I introduced the imperative from social marketing to make the public's tasks measurable. This is in part because the campaigns used these quantitative measurements to evaluate their own success. Both the Nature Challenge and the One-Tonne Challenge measured the traffic on their websites and the number of people who signed up to the campaign via their websites. The One-Tonne Challenge also planned to conduct widespread polls on awareness of the campaign. When they were developing their campaign, GreenHome campaigners worked to set quantitative targets as their goals. During the planning stage, these goals read as follows:

- To roll out the program and sign up 2,000 households nationally each year for 5 years

- To reach community environmental targets for reduction in energy, water and waste
  - X% reduction in greenhouse emissions
  - X% reduction in water consumption
  - X% reduction in household waste
- To gain 500 new ACF donors or members each year of the program (5 years) directly through [GreenHome]
- To achieve the participation of 20% of the [GreenHome] network in ACF or other environmental campaign actions

(Australian Conservation Foundation 2004a)

After they piloted the first stage of the campaign, the GreenHome staff announced that, for the first participants, "the combined results of their actions resulted in total annual savings of 12.75 million litres of water, 650 tonnes of greenhouse pollution and a 30% reduction in landfill waste" (Australian Conservation Foundation 2005d).

Measuring results was a particularly important preoccupation for the Cool Communities campaign. This campaign distributed lengthy surveys to all its participants to measure the specific actions that they had taken as part of the program. The campaigners also planned to correlate these self-reported results with actual energy use recorded in household energy bills. While the government and non-government campaigners participating in Cool Communities agreed on the importance of measurement, the details of how to carry out this measurement led to several controversies during the course of the campaign. Specifically, campaigners were concerned about what exactly the surveys were measuring and how. Due to the time frame of the government funding cycles, the surveys were collected earlier than many facilitators and community leaders felt was fair because the households took actions beyond the time measured by the surveys. The campaigners also debated amongst themselves over whether the program should be oriented towards activities that could

be measured by the survey. Some campaigners felt that Cool Communities should focus on actions that made the biggest impact in the surveys. For example, switching from traditional, fossil fuels-based power to renewables-based "green power" could be easily captured by the survey questionnaire and reliably quantified by examining household energy bills. Finally, government and non-government campaigners argued about how to measure the number of participants in the program. The government policy was to count the number of participants whose contact information was collected. However, the non-government campaigners also wanted to include other types of engagement. As one environment group campaigner put it,

> There's a lot of outreach that isn't recorded. For example, my own role in the program: I go home from work I talk to people about it. That would be happening on all sorts of different levels. … When you're working with a community and being a part of their lives and inspiring them to make changes in their lives and for the environment and to save money and energy, they then talk to their friends because it's something that they feel good about. I think there's a lot of outreach that isn't tangible, and that isn't included in those figures as well.

Because they were responsible for actually compiling the participation figures, the non-government campaigners were strongly aware of the judgment calls they had made in deciding what to include in a category. One campaigner responsible for this task remarked: "figures aren't always exact and yet that's what they claim to do, put information into exact terms."

Perhaps more so than with climate change science, then, campaigners generate and modify the numbers in the campaigns to suit their diverse and divergent purposes. But what are the purposes of all these numbers?

Numbers for Campaigners

In the previous section, I discussed where some of the campaign numbers are *from*. I argued that their prevalence was in part due to their association with natural science and social science in the campaigns. In this section, I turn to the question of what the numbers are *for*. I argue that the quantities that play such an important role in the campaigns can serve qualitatively different purposes. This section will focus on the numbers primarily for the campaigners' own purposes; the next section will focus on numbers for the public.

Numbers and Legitimacy

What are the most significant numbers for each campaign? All of the campaigns are measuring their success, but there is an important difference between what the Canadian and the Australian campaigns are choosing to measure. As I mentioned in Chapter 2, I only realized that the Canadian campaigns were measuring participation when I discovered that the Australian campaigns were measuring both participation and abatement. Abatement in the climate change world refers to the quantities of greenhouse gas emissions that are prevented from entering the atmosphere compared to "business as usual." Similarly, the campaigns can measure

other environmental outcomes, such as litres of waters saved or percentages of waste diverted from landfills.

The One-Tonne Challenge, though, measured only awareness of their campaign over time, using national opinion polls. The Nature Challenge counted the number of people who had signed up to the campaign and broadcast this number in their promotional materials. As of 2004, more than 150,000 people had signed up to take the Nature Challenge (David Suzuki Foundation 2004). In contrast, both GreenHome and Cool Communities focussed on measuring abatement. A GreenHome campaigner criticized the Nature Challenge on these grounds:

> It's one thing to get people to sign up for it on the web for it, but it's quite another to try and see if they actually did that stuff. I guess you could do the calculations: if 120,000 households who signed up had done the 10 steps this would be the environmental benefit on an eco-footprint level. I'm sure they've done that sort of calculation, but have they actually monitored the results to see what people have actually achieved? I'd like to know about that to see if that model is successful.

Instead, GreenHome publicized their results, not in terms of numbers of participants, but in terms of abatement:

> The savings achieved by the 200 Bankstown GreenHome participants:
> - 12.75 million litres of water per year (= 12.75 Olympic swimming pools of water)
> - 650 tonnes of greenhouse gases per year (= the volume of 650 3BR homes)
> - Reduction in waste to landfill of 30% (= on average about 290kg of waste per household NOT going to landfill per year)
> (Australian Conservation Foundation 2005d)

As discussed above in the social marketing section, Cool Communities devoted even greater attention to measuring abatement. Cool Communities both surveyed

participants' self-reported results and collected billing data to track decreases in energy use.

Why would campaigners use quantitative measurements as signs of their success? This is not a new phenomenon, nor one confined to climate change governance. As Sheila Jasanoff explained, "quantification, with its powerful appearance of neutrality, provides a welcome refuge for beleaguered agency officials. By the same token, any decision-making strategy that cannot represent itself as objective, through quantification or other forms of analysis, risks becoming politically unsustainable" (Jasanoff 2003b, p.234). Jasanoff is here building on Porter's seminal work on the role of numbers in governance (1995). Porter argued that "reliance on numbers and quantitative manipulation minimizes the need for intimate knowledge and personal trust" (1995, p.ix). Porter argues that this appeal to objective, quantitative knowledge can be particularly important for those involved in governance:

> The appeal to numbers is especially compelling to bureaucratic officials who lack the mandate of a popular election, or divine right. Arbitrariness and bias are the most usual grounds upon which such officials are criticized. A decision made by the numbers (or by explicit rules of some other sort) has at least the appearance of being fair and impersonal. Scientific objectivity thus provides an answer to a moral demand for impartiality and fairness. Quantification is a way of making decisions without seeming to decide. Objectivity lends authority to officials who have very little of their own. (Porter 1995, p.8)

Government campaigners, then, are part of this phenomenon; non-government campaigners, as professionals in the "conduct of conduct," can rely on numbers in this way as well.

The Australian campaigns, though, sought the more difficult to attain abatement measurements, beyond the mere counting of participants. Following Porter, we can see that the Australian campaigns may rely more heavily on numbers because of a lack of trust. More specifically, the Australian campaigns sought to increase their legitimacy with regards to their managerial and political masters, in the cases of GreenHome and Cool Communities respectively.

For GreenHome, their problems of legitimacy stemmed from the fact that it was new for ACF to run a campaign aimed at public consumption. The GreenHome founder attempted to convince her managers to supporter her idea by providing quantitative targets and outcomes, based on social marketing research and principles.

Legitimacy was an even bigger concern for Cool Communities, which was located in a vulnerable place in the Australian political landscape. On the one hand, the conservative Howard government had ruled out ratifying the Kyoto Protocol. At the same time, the Australian Greenhouse Office, where Cool Communities was housed, was still tasked with reducing Australia's greenhouse gas emissions to the level of the Kyoto target. The manager of the campaign analyzed the circumstances facing her program in this way:

> The idea that you put the most money into where it's most cost-effective to purchase abatement is quite a powerful analytical tool for the current government. … To meet the government's objectives of achieving Australia's Kyoto's target without ratifying, you fundamentally notice the idea to not put unwarranted burdens on industry, which means getting abatement where the marginal cost of abatement is cheapest.

As a result, she felt that they "needed to show that funding for this sort of program would actually result in measurable and not particularly costly abatement." But why did the program actually have to achieve abatement that could be measured? Programs designed to raise the public's awareness of an issue can benefit the government, even if they don't achieve their stated goals, because the government can be seen to be taking action. If the Howard government was relying on meeting the Kyoto target as the way that they would be seen to be taking action, however, it would not be enough to raise awareness. The campaigners felt that they had to compete with other abatement programs or face marginality as being "symbolic," an "option," a "glossy extra," and not "mainstream."

> All the other programs, with industry, were requiring measurement of abatement. If we were going to compete - we can't really compete because it's more expensive and we can't reduce as much emissions, it's easier to reduce emissions within industry and agriculture - but we had to be on a par and we had to be seen as not this "airy fairy" program that couldn't demonstrate what it was achieving, so that we could be up there and say here's just what we're doing, not only numbers of households and numbers of communities and whatever, yeah we can actually measure the abatement that we're achieving here.

The measurement of abatement, then, was supposed to garner legitimacy at two levels. First, the Howard government wanted to use the numbers to legitimize their approach to Kyoto. Second, the campaigner public servants wanted to use measurable abatement to legitimize a program aimed at the public within the government's overall approach to climate change.

Quantification, however, was not an automatically successful strategy for securing legitimacy, as became clear when the program was cut. The fact that the

campaigners had met their numerical targets did not stop the higher level government officials from cancelling the program.

Numbers and Lobbying

Numbers in the campaigns also play a role in lobbying. In this regard, there is a marked difference between the use of numbers between the government and non-government campaigns, which use their numbers to lobby government and industry.

David Suzuki explained that there was a dual rationale behind the Nature Challenge campaign. First, he wanted to give people the opportunity to participate:

> Most people that I meet who are concerned with environmental issues -- particularly climate change -- are frustrated because they don't really know what to do. They don't know what the most effective thing is that they can do. They don't want to do something that they feel will be trivial or that won't be effective in the long run so that's the challenge in supplying people's demands for concrete things they can do. Can we give them something to do that is meaningful that will have an impact and yet on their part is do able? And that's what the Nature Challenge tries to do.

However, individuals' participation is not only confined to taking the steps recommended by the Nature Challenge. Perhaps more importantly, Suzuki wants the *number* of participants to be noticed by the government.

> But I have a second agenda. I know compared to business even if all Canadians were doing 3 out of the 10 steps, it still would be very small. So I think what we need desperately is political action. We need regulation and laws and government is very reluctant to do that but if we can recruit enough Canadians to take the Nature Challenge voluntarily then I think it will be irresistible. Every politician will have to say yes, I will join the Nature Challenge and then the pressure is on them to do something more significant.

The lobbying function, then, is paramount for the campaign, and it is the numbers that are hoped will primarily serve as the force that creates the pressure. Similarly, GreenHome publicizes their quantitative abatement measurements to demonstrate to government and industry what it is possible to achieve. In their first, celebratory press release, GreenHome participant Isabel Sukkar stated: "By replacing my old shower head with a AAA water-saving one and other water saving measures I've cut my water usage by 20,000 litres a year. I also switched to 100% green power electricity for my home" (Australian Conservation Foundation 2005d). Ultimately, the campaigners hope that if GreenHome can achieve widespread participation and significant results, then industry and government will have to take notice and change their behaviour as well.

Numbers and Identity

In addition to legitimacy and lobbying, numbers are also part of the identity of campaigners. For example, the One-Tonne Challenge campaigners were very proud of the fact that their campaign provides a goal that is, in their various words for it, "specific," "tangible," and "quantifiable." Campaigners often cited this quantifiable feature of their campaign as what set them apart from other similar campaigns and said that it brought them positive attention in the international arena.

The Cool Communities campaigners, both non-government and non-government, identified strongly with the quantitative nature of their campaign. The

non-government partners in Cool Communities had what was known in the program as a "performance-based contract." This meant that, in order to be paid, they had to deliver certain precise quantities of results. These included the number of households enrolled in Cool Communities programs, the number of media stories, and the quantity of emissions abatement. Said one NGO leader,

> I think it has not only shown the government but also ourselves that we can perform, that we can make extraordinarily tight deadlines, that we can deliver outcomes. … The fact is we've delivered the abatement results, generally beyond what's expected, we've delivered the recruitment numbers beyond what was asked for, and then there's the intangible benefit of an incredible amount of goodwill and positive feedback on this issue which has been seen most clearly in the positive media.

Government campaigners also identified with numbers as a way of proving the campaigns' worth to themselves: "It's too easy for governments to dismiss behavior change programs, and for ourselves as well, I mean if we were actually looking at behavior change and not just educational awareness, how are we going to measure it?". Aside from using numbers for legitimacy and lobbying, then, campaigners also felt proud of having quantitative campaigns. Campaigners could feel proud because, as Porter explained, "quantification for public as well as scientific purposes has generally been allied to a spirit of rigor" (1995, p.74). In seeking this rigorous approach, campaigners took on quantification as part of their identity.

Numbers for the Public

Thus far, I have discussed numbers mainly as they pertain to campaigners themselves. Campaign numbers, though, affect not only the campaigners but also their audiences. In the case of numbers, the relationship between campaigners and their audiences is similar to the process of "configuring the user" described by Woolgar (1991). As I explained in Chapter 1, Woolgar defined "configuring the user" as the process by which designers try to learn about their users and at the same time try to control (or "configure") the parameters of users' interactions with the technology. This process is relevant to many aspects of the campaigns, but it is perhaps most evident and applicable to the highly quantitative technologies described in this chapter.

Environmental calculators are a prime example of quantitative "configuring the user" technologies. The One-Tonne Challenge, Nature Challenge, and GreenHome campaigns include these kinds of calculators. Broadly speaking, these online tools all work the same way. The participant enters information about her environment-related technologies and behaviours. The calculator then provides an evaluation of her environmental performance. Finally, the participant can explore the consequences on her results of changing certain technologies and behaviours. A One-Tonne Challenge campaigner described their calculator (Canada 2004b) as follows:

> The calculator is a tool that was made in response, when we did some focus group testing, and Canadians said we really want to know how much we produce specifically because everyone has a different lifestyle. Some people live in apartments, some people own homes, some people own SUVs, some people take the bus. So they wanted an opportunity to create a profile by answering some simple questions about themselves, about the province that they live in, the energy that they use, and then answer a questionnaire type format, and then be able

> to calculate how many [greenhouse gases] do I produce today. So we've developed a calculator that will do that. And in addition, we've included a second half where we ask them to identify actions that they are willing to take. So that they can find out that they are producing this much [greenhouse gases], ok say it's 3 tonnes of [greenhouse gases] annually, and we ask them to answer questions on which actions they are willing to take. And then we can identify ok well if you take these actions you have an opportunity to reduce your [greenhouse gases] by one and a half tonnes so you've reached your one tonne goal.

Similarly, the Nature Challenge calculator "shows how your household affects nature. By inputting some basic personal information, the calculator will estimate your contribution to climate change, air and water pollution and the alteration of land and water habitat. Using the calculator, you can see the environmental benefits of taking David Suzuki's Nature Challenge" (David Suzuki Foundation 2006a). The GreenHome calculator states its purpose in even more directly quantitative terms: "*How much* does your lifestyle impact on the environment?" (Australian Conservation Foundation 2006, emphasis added).

In Foucault's terminology, these calculators are "techniques of the self" (Foucault 1988). As Rose explains, these techniques are "injunctions to moral government formulated largely in terms of self-control" (1999, p.43). We can find these techniques instantiated in mundane practices and in physical infrastructures, such as "architecture, guidance to parents, in the work of pauper schools" (Rose 1999, p.43), and in the campaigns' environmental calculators. The calculators work not by directly enforcing governments' full regulatory powers but rather by encouraging the public to self-govern according to the parameters defined within the technologies. Rose argues that this form of control is thus fundamentally intertwined with the

freedom of individuals. He explains this relationship between freedom and self-governance as follows:

> These technologies sought to instil techniques whereby selves would simultaneously practice upon themselves as free individuals and build them into a civilized polity by means of that freedom and the modes in which it was enacted. They dreamed that one could produce individuals who did not need to be governed by others, who would govern themselves through introspection, foresight, calculation, judgement and according to certain ethical norms. In these ideal individuals the social objective of the good citizen would be fused with the personal aspiration for a civilized life: this would be the state called freedom. (Rose 1999, p.78)

There are clear moral invocations in the environmental calculators. The calculators quite literally judge whether each person's environmental performance is good enough or whether it needs improvement. For an average Australian, the GreenHome calculator concludes with the following message:

> Hmmm. Your impact is just about average for an Australian, but unfortunately that's nothing to be proud of. Australians are per capita the second biggest consumers of water and energy, and producers of waste on the planet - just after the USA. If everyone on Earth lived like us, we'd need four planets to support us all. So why not sign up for the GreenHome Challenge and be prepared to stand out from the crowd. (Australian Conservation Foundation 2006a)

Similarly, the Nature Challenge calculator offers the opportunity to improve your contribution to the planet's health: "If you are not happy with your results, you can try to make more of a difference. You can go back now (using your web browser's back button) and change your answers. … If you are ready to make the world a better place, sign up for the Nature Challenge now!" (David Suzuki Foundation 2006a).

Even the Cool Communities surveys make these moral evaluations, if less explicitly. As described above, these surveys measure abatement for the campaigners.

Unlike the calculators, individuals do not measure or evaluate their own results; they are tasked with answering the survey questions almost mechanically. However, a community leader described how her participants responded not to the technical abatement measurement imperatives but rather to the survey's normative overtones. She explained, "Some of the [survey] questions were: 'Since you've participated in Cool Communities, have you started washing in cold water?' for example. Well, they had to tick 'no' because they hadn't done it, but some had previously done it. … They already did those things. … So for the people who had already been quite good anyway, they felt that it didn't allow them to explain that they'd been quite good." This type of moral accounting is not a new phenomenon, nor is it confined to climate change campaigns. Weber described how "the conscientious Puritan continually supervised his own state of grace," with the aid of "religious account-books in which sins, temptations, and progress made in grace were entered or tabulated" (1958, p.124). Most famously, Benjamin Franklin undertook "tabulated statistical book-keeping on his progress in the different virtues" (1958, p.124).

These quantitative techniques, then, configure the user to self-govern according to the campaigns' normative goals. I use the term "configure the user" rather than "control" for two reasons. First, the process is more subtle and, in Rose's sense, premised on freedom than the stronger term "control" would suggest. Furthermore, it is not a unidirectional phenomenon. The user has a chance to speak back to designers, to go along with what is being asked of them, or not (Rose and Blume 2003). However, the campaigns set up the pathways by which the public can

communicate back to them about their participation, or can not, depending on campaign design. When campaigns such as the One-Tonne Challenge and the Nature Challenge measure participation, individuals can only register their choice to sign up, or not. The abatement measuring of Cool Communities and GreenHome provides the additional infrastructure to record whether and to what extent individuals carry out technological and behavioural modifications. The campaigners' uses of numbers thus directly affect how the public is able to speak back to the campaigners about their own participation.

Conclusion

This chapter has examined the phenomenon of quantification in climate change campaigns. From online calculators, to abatement surveys, to the very name of the One-Tonne Challenge, numbers play a prominent role in these campaigns. I began by tracing the origins of many of these numbers to the natural science of climate change and the social science of social marketing that I discussed in Chapters 3 and 4. I then argued that campaigners use these numbers for a variety of purposes: for lobbying, for legitimacy, and as part of their identity. In Chapter 6, I will return to these categories of lobbying (especially as part of policy debates), legitimacy, and identity to show how government and non-government campaigns converge and diverge in these areas. This chapter, then, served the purpose of introducing these categories in the context of

the campaigns' technologies of quantification. Finally, I showed that some numbers are predominantly for the public's use. I suggested that these numbers "configure the user" to self-govern according to the campaigns' moral imperatives. This does not mean that the public actually *does* behave according to campaigners' desires. Rather, it means that campaigners envision the public and create the means for the public to speak back to them through these technologies of quantification. In Chapter 7, I will further explore the relationship between uses of science and technologies of quantification in campaigns, visions of public participation, and models of environmental responsibility and citizenship. This chapter has thus served to link the previous two chapter on uses of science in campaigns with the following two chapters on the politics of governance.

CHAPTER 6

CONVERGENCE AND DIVERGENCE IN GOVERNMENT AND NON-GOVERNMENT RELATIONS

Introduction

From November 28 to December 9, 2005, almost 10,000 people from 189 countries gathered in Montreal to discuss climate change. The occasion was the eleventh meeting of the Conference of the Parties ("CoP-11") to the United Nations Framework Convention on Climate Change (UNFCCC). In other words, eleven times since the UNFCCC was signed in Rio de Janeiro in 1992, government signatories to this convention, environment groups, media, and other interested observers had been meeting to discuss climate change. The Montreal gathering was a particularly significant "CoP" because it was the first since the Kyoto Protocol had come into effect, thus making it "MoP-1": the first "Meeting of the Parties" to the Kyoto Protocol. Almost all the organizations discussed thus far, and many many others as well, were present for this meeting in Montreal. The David Suzuki Foundation sent its climate change campaigners; David Suzuki himself was there, as was his daughter Severn Suzuki, who is taking up the family cause. The Executive Director of the Australian Conservation Foundation came all the way from Melbourne, and Friends of the Earth's lead Climate Justice campaigner came from Brisbane. Several One-Tonne

Challenge campaigners, along with perhaps a hundred employees from Environment Canada, were out in force with a large exhibit at the conference. Missing only was Cool Communities, which was cancelled in 2004, but the Australian Greenhouse Office did send representatives.

This gathering encapsulated the themes of policy, legitimacy, and identity that will be explored in this chapter. First, on the one hand, the environment groups were in Montreal to lobby the governments for particular policies. On the other hand, activists and government officials were united in being focussed on climate change and in their expertise over the arcane contents of the Montreal negotiations. BBC reporter Tim Hirsch filed a report from Montreal mockingly pointing this out. He wrote about how activists were criticizing Japan for tabling "a conference paper entitled, 'Proposal for criteria for cases of failure to submit information relating to estimates of greenhouse gas emissions by sources and removals by sinks from activities under Article 3.3 and 3.4 of the Kyoto Protocol'. That must be bad, probably worse than clubbing baby seals on the head" (Hirsch 2005, p.1). He also laughed at an activist's protest sign: "The catchy slogan on the posters read 'Support Agenda Item Six Now!' It has a certain ring to it, but it is not quite 'Save the Whale' or 'No Nukes'" (Hirsch 2005, p.1). As Hirsch argued, perhaps the only people on Earth who could understand these messages were already in Montreal at the conference. The activists and government officials, then, shared a common language of expertise and a common focus on climate change policy. Second, the governments and environment groups were using each other's presence to make claims about legitimacy. The Canadian

government powered the conference computers using the environment group Pembina Institute's wind power program, a fact that was heavily advertised both inside and outside the conference building. At the same time, the environment groups cited any government statements that supported their own views as evidence that their positions were moving into the mainstream. Third, both environment group and government staff members identified with their own groups in opposition to each other's groups. At the same time, in their campaigns focussed at the public, which both environment groups and governments were promoting in Montreal, they advocated taking on an environmentally sustainable identity which would apply to themselves, to each other, and to all of us.

This chapter, then, will discuss the divergence and convergence in the realms of policy, legitimacy, and identity of the government and environment group campaigns. First, in the policy realm, non-government organizations (NGOs) lobby governments over climate change issues including the Kyoto Protocol, energy production and use, and emissions reductions. However, NGOs and government campaigns converge in their uses of science and technologies of quantification discussed in previous chapters. Similarly, the behaviour change recommendations aimed at the public are policies advocated by all the campaigns. In the second section, I will turn to questions of legitimacy. I will argue that the government and non-government groups seek legitimacy both by allying together and by distancing themselves from each other. Finally, I will argue that campaigners' identities once again diverge and converge. They diverge in the sense of seeing themselves as

displaying their differences through consumption patterns yet converge in the sense that the purpose of the campaigns is to bring all of us into a common sustainable lifestyle identity. This goal applies to literally everyone, including government and non-government groups. The state-social movement relationship, then, is not a unitary one. The relationship is an assemblage of contradictory flows, moving both apart and together. I will show that convergence and divergence can be explained in part due to institutional divisions within government and non-government groups, and in part due to the varying audiences addressed by campaigners.

Institutionalization

As discussed in Chapter 2, I am not comparing government and non-government campaigns as independent cases. Rather, I have argued that all four campaigns are part of a common social world, with discursive, material, and interpersonal ties across their organizations. In this chapter, I will ask not how they compare but instead what is the relationship between the government and non-government campaigns. In the social movements literature, this question is often posed in terms of a debate over institutionalization. Are social movements characteristically outside of institutionalized politics, at the heart of institutionalized politics, or somewhere in between?

For many authors, social movements should be defined as extrainstitutional, "outsider," and disruptive collective behaviour, that particularly makes claims against the state (e.g. Gamson 1975, Tilly 1978, Jenkins and Klandermans 1995). Jack Goldstone has argued that this is a historic artifact of the social movement field's intellectual history. He writes,

> Social movement theory as it emerged in the 1950s and 1960s lost sight of the essential complementarity of both social protest and electoral politics by focusing on somewhat peculiar movements, namely, movements in democratic societies that mainly involved people who were legally debarred from voting. Black civil rights and New Left student movements (before the voting age was lowered to eighteen) could draw a fairly clean line between normal political activity (voting, running for office) and protest activity (association, demonstration, protest) because *for those groups* only the latter was viable. (Goldstone 2003, p.6)

More recently, and with a broadening of the field to focus on a wider range of movements, this association of movements and noninstitutionalized action has been challenged. Goldstone lists a variety of relationships between movements and states, including variations on repression, toleration, and influence (2003, p.21-24). Meyer and Tarrow have gone even further by arguing that, rather than being characteristically noninstitutionalized, movements are professionally an institutionalized part of politics. In particular, protest, which was once movements' signature technique of disruption, has become a customary part of politics. This is a major basis for Meyer and Tarrow's claim that we have entered the era of the social movement society (1998). They argue that protest has become a perpetual and widespread form of political action, and that professionalization and institutionalization are turning social movements into "an instrument within the realm of conventional politics" (1998, p.4).

Certainly, NGO climate change campaigners are highly professionalized, running campaigns as full time career experts, working in social movement organizations that have by and large abandoned amateurish political practices (1998, p.15). In addition, the environmental movement has clearly been institutionalized.[19] In its modern incarnation,[20] the movement took off in the 1960s, and by the 1970s numerous environment departments had been established (Charvolin 2001). For example, both Environment Canada and the Australian Department of Environment and Heritage were established in 1971. More recently, the climate change element of the environmental movement has also been undergoing a process of institutionalization. After the Kyoto Protocol was signed in 1997, many climate change institutions were established. The Australian government points to its international leadership in this area of climate change work, if not in others such as ratifying Kyoto. In 1998, the Australian Greenhouse Office was established, becoming the first comprehensive and free-standing government agency responsible solely for climate change concerns. The Canadian government, in contrast, has had a succession of different and more ad hoc institutional arrangements. From 1998 to 2002, the National Climate Change Secretariat was tasked with coordinating action on climate change occurring in multiple different government departments, such as

[19] In principle, institutionalization need not refer to a state-movement relationship. For example, the environment movement has been institutionalized in some businesses that have established offices for limiting their company's environmental impact. However, in much of the social movements literature, institutionalization does refer to the realm of state politics (c.f. Davis et al. 2005). In their discussion of institutionalization, Meyer and Tarrow argue that it "allow[s] dissidents to continue to lodge claims and permit[s] states to mange dissent without stifling it" (1998, p.21). Here we can see the focus on the relationship to the state. For my study, I have also focussed on the state-movement nexus.

[20] There were early forms of environmentalism, such as the conservation movements of the 19th century, led by such famous conservationists as John Muir.

Environment Canada, Natural Resources Canada, Transport Canada, and Health Canada. Within Environment Canada, a Climate Change Bureau was established also in 1998. This group is responsible for Canada's international negotiations but also for domestic programs such as the One-Tonne Challenge. This campaign, however, is jointly managed between Environment and Natural Resources Canada, meaning that coordination activities are a significant part of the One-Tonne Challenge organizational efforts. Canadian government officials have spoken with envy of the centralized planning and implementation made possible by the Australian Greenhouse Office, compared to their more complex arrangements. Nevertheless, even in Canada a focus on climate change has been institutionalized, if in a more shifting way than with Australia's more permanent Greenhouse Office.

Another aspect of institutionalization occurs when social movements gain allies or representatives within government organizations (e.g. Binder 2002). The environmental movement, and its climate change branch, are certainly institutionalized in this sense as well. As described in Chapter 2, there are so many connections across the government and non-government campaigns that I consider them to be part of the same social world. This certainly includes non-government activists taking up positions or serving as consultants within government.

The environmental movement, then, is both professionalized and institutionalized. However, the relationship that I would like to describe is both more narrow and more broad than that suggested by the institutionalization framework. The environmental movement is an umbrella term that includes a very wide variety of

actors, organizations, and perspectives. The term can also refer to spin-off or hybrid movements, such as environmental justice and sustainable consumption, as well as to political Green Parties. This diversity means that there is more to be said about each part of the movement than whether it too is institutionalized. I am more narrowly, then, discussing especially the characteristics of climate change campaigns aimed at the public. I am also speaking more broadly, because the relations between state and non-state are not just a matter of institutionalization. The environmental movement has been institutionalized and professionalized for so long that the connection of institutions like the Australian Greenhouse Office is not necessarily or primarily to a social movement. This chapter, then, will ask narrowly about climate change campaigns but broadly about the wide ranging relationships between government and non-government organizations. I will argue that their relationship involves a constantly dynamic process of convergence and divergence, with both occurring simultaneously, reinforcing and yet contradicting one another. I will discuss this process with regards to three main themes: policy, legitimacy, and identity.

Policy

Perhaps the most obvious area of government and non-government interaction is debates over policy. The Australian Conservation Foundation (ACF) and the David Suzuki Foundation (DSF) have two campaign groups related to climate change policy.

First, both have a group specifically devoted to campaigning on climate change; this group is called the "Climate Change Campaign." Second, each organization has a group devoted to convincing the public to take specific environmentally-friendly actions, many of which are related to climate change. At ACF, GreenHome is institutionally located in the Sustainable Australia campaign. At DSF, the Nature Challenge is part of the Web of Life campaign, which also includes the program advocating "sustainability within a generation." The government and non-government divergence, then, is primarily on the subject of climate change policy, while the convergence is with regards to policy exemplified in the sustainability campaigns (GreenHome and Nature Challenge). The government campaigns (OTC and Cool Communities) straddle both these categories because they are climate change campaigns aimed at individual behaviours. In terms of policy, though, they fall under the same category as the NGO sustainability campaigns.

First with regards to climate change policy, then, ACF and DSF engage in similar forms of policy advocacy towards their governments.[21] Both organizations undertake research and produce reports, many of which are aimed at the government. They also use the media to pressure government, such as by issuing press releases that condemn government action or inaction. They participate in government committees

[21] The similarities between ACF and DSF are not coincidental. For two similar nations such as Canada and Australia, it is not surprising to find organizations operating in a parallel space in each country. There are also strong networks of communication throughout the environmental movement internationally. Activists follow each other's work and attend some of the same international events like the United Nations climate change meetings. In addition, they have more direct contact on occasion. On his fact-finding tour of Western environment groups, ACF's Strategies Director stopped in Canada only to visit DSF. David Suzuki worked with the former ACF President and fellow celebrity Peter Garrett (front man of the rock group Midnight Oil). There is also movement of staff that ties disparate groups together. For example, a former DSF campaigner and a future ACF campaigner worked together for a time at Greenpeace Australia.

or conferences, and submit briefs to public inquiries. On occasion, they meet with politicians or civil servants. Finally, at times they try to harness public outrage to put pressure on government. They may urge the public to write letters to their politicians, or to send faxes and emails to ministers through their campaign websites. They may also try to get their followers to send paper mail to their Member of Parliament. ACF routinely distributed postcards for supporters to mail to government officials. Similarly, at the Montreal meeting, DSF had employees getting postcards signed at the protest march to mail en masse to the Prime Minister.

Taken together, these actions comprise typical lobbying activities of social movement organizations.[22] Thus far I have described the form of the lobbying activity. The content of the lobbying is again similar across ACF and DSF, but with some differences resulting from the national political environment. Both organizations' climate change campaigns lobby over four main sets of issues. First, in both countries, the Kyoto Protocol is a major policy topic. For Australia, ratification is the point of contention; in Canada, it is implementation. Second, ACF and DSF want their governments to use regulatory instruments to increase each country's use of renewable energy and improve energy efficiency standards. Third, they lobby their governments to end subsidies to fossil fuel companies (mainly coal in Australia and oil in Canada). Fourth, they would like to see their governments commit to long-terms plans to reduce greenhouse gas emissions. As I discussed in Chapter 5, the

[22] David Suzuki Foundation campaigners are not permitted to "lobby" because their organization is legally registered as a charity. They are obliged to offer non-partisan advice to all parties, whether in government or not. However, I am using the term lobbying in a less technical sense. I understand the term to mean simply a formal attempt to influence government policy.

GreenHome and Nature Challenge campaigns also have lobbying components. Both campaigns publicize their quantitative results to pressure government and industry to take stronger action. Unlike ACF and DSF's climate change campaigns, where lobbying is the primary activity, the GreenHome and Nature Challenge campaigns include lobbying only as the final stage after the rest of the campaign work has been completed.

There is much more that could be said about the policy differences between governments and environment groups. However, this is not my purpose here. Rather, I raise these examples to demonstrate one important element of government and non-government relations. In short, lobbying is by definition about a policy divergence. It is not surprising at all to find social movement organizations challenging government policies. However, there are two important policy areas in which government and non-government groups are converging rather than diverging. This is with regards to the policy choices exemplified by the non-government sustainability campaigns (GreenHome and Nature Challenge) as well as by the government climate change campaigns aimed at the public (Cool Communities and One-Tonne Challenge).

First, both government and non-government campaigns use climate change science (Chapter 3) and social marketing (Chapter 4) to motivate the public to take action on climate change. Although there are differences in how particular campaigns are involved with natural and social science, their common involvement in both is in part a matter of policy. Second, as we saw in Chapters 4 and 5, all the campaigns are advocating personal, practical, and measurable actions for the public to take. The

campaigns recommend choices such as walking instead of driving and buying energy efficient appliances, and offer measurement technologies such as abatement calculators or surveys. These recommendations for public action were not inevitable nor obvious. This is evident by contrast with the youth-run, grassroots, and more radical Otesha Project. Their campaign is entirely focussed on individual actions, but they emphasize different actions than the more mainstream ACF and DSF. For example, Otesha highlights social justice considerations, vegetarianism, and buying used clothing. When Otesha was contracted by the One-Tonne Challenge to develop their youth website, Otesha was asked to remove these types of tips from the site. The fact that ACF and DSF advocate very similar actions to the One-Tonne Challenge and Cool Communities, then, is a matter of policy and represents a significant form of convergence between the government and non-government campaigns.

This simultaneous divergence and convergence can be explained in part due to the institutional arrangements within each type of organization. Because the government has vastly greater resources, it can devote a full team of employees to running a specialized campaign specifically aimed at greenhouse gas emissions reductions. The government's work on Kyoto, energy, and emissions reductions is primarily concentrated in other parts of Environment Canada or at other government departments. The environment groups also have an institutional division, but on a much smaller scale. Their climate change lobbying efforts are primarily the responsibility of the climate change campaigns, while their programs aimed at the public are part of their sustainability campaigns. GreenHome and Nature Challenge

target climate change-related actions but also other environmental areas such as water and waste. This is a policy choice regarding how to approach environmental issues - integrated or separated - however, it is also a question of resources for they would likely not be able to run multiple public campaigns at once.

In addition to the subject area, though, the climate change and sustainability campaigns have different orientations. While lobbying is the main focus of the climate change team, with public participation a supplement, in the sustainability campaigns public participation is the main goal with lobbying a supplement. Another way to look at this is with regards to audiences. For the climate change teams, the primary audiences are government and industry. Speaking to the public is more a means to the end of gaining the ear of their true audiences, government and industry. In contrast, for the sustainability campaigns, the primary audience is the public and government audiences are only secondary. In their primarily state-related campaign, then, the non-government groups diverge from the government; in their primarily non-state-oriented sustainability campaigns, the non-government groups converge with the government.

Legitimacy

In addition to divergence and convergence over policy, governments and non-government groups both ally together and distance themselves from each other in

order to bolster their legitimacy. I will first discuss debates around legitimacy with regards to the Cool Communities campaign. There, the non-government organizations working at the state and territory level (known as "conservation councils" in Australia) were so closely integrated with the government that they were accused of being coopted. The conservation councils themselves, though, felt that the program was so beneficial that it was worth the risks to their legitimacy. These benefits included funding, new constituents, expertise, and positive environmental and social outcomes. I will then turn to commonalities across all the campaigns. Unlike the conservation councils, the David Suzuki Foundation refuses to accept government funding because it could compromise its independence, and thus its legitimacy. The mirror image of this process is that the governments may withhold funding to non-government groups for reasons related to their own legitimacy. These legitimation debates, then, result in divergence between the government and non-government campaigns. At the same time, though, the non-government groups and the government would on occasion cite each other in order to bolster their moral or scientific authority. The campaigns also share a reliance on the uses of science and technologies of quantification as means of enhancing legitimacy. As with the policy issues above, then, there is divergence and convergence in the realm of legitimacy.

Legitimate Cooptation?: The Cool Communities Campaign

Because the government and state- and territory-based non-government groups (the conservation councils) were so highly integrated, the debates around legitimacy in the Cool Communities campaign were particularly charged. In the social movements literature, when social movements become heavily involved with the state, they are described as co-opted. Meyer and Tarrow have argued that cooptation occurs when "challengers alter their claims and tactics to ones that can be pursued without disrupting the normal practice of politics" (1998, p.21). They reject the the narrower definition of cooptation of some analysts that implies the abandonment of political goals" (1998, p.28, n.15). By both the broader and the narrower definition of cooptation, the non-government groups in Cool Communities could be said to qualify. The conservation councils originally proposed a program in which they would be funded to "have advocacy capacity to work on greenhouse," according to one of the early participants. However, in the process of garnering funding for their proposals, the goals of the campaign shifted: "I believe it was the AGO that wanted to move - they're a little bit frightened of advocacy - and moved it towards the householder approach on behavior change." This description was matched almost word for word by a government manager involved in this process: "They wanted ... to be funded to work with industries more and in terms of household issues as well but it was more in an advocacy role more than anything. And we wanted more of an engagement of households, and working directly with households, and that was hard enough to manage. We just wanted to keep it discreet." The fact that the conservation councils accepted these terms would certainly qualify as changing tactics in order not to disrupt

normal politics - in their terms, it was a move from advocating the government and industry for policy changes to working with householders to change their individual behaviours related to climate change.

In addition, the conservation councils agreed, to a certain extent, to abandon their political goals. Each conservation council staff member working on Cool Communities had to sign a contract stating that

> Cool Communities staff based with the environment organizations, funded by the AGO [Australian Greenhouse Office], would find themselves in a Conflict of Interest scenario if they were to: (i) act in another position concurrently as spokesperson for their host environment organisation on greenhouse and climate change issues; (ii) publicly advocate against the Commo0nwealth [sic] Government on issues associated with greenhouse and climate. (Australian Greenhouse Office 2003b)

In practice, this usually referred to not criticizing the government for their refusal to ratify the Kyoto Protocol. This led to some strange situations, such as a Cool Communities campaigner running in a federal election for the Green Party but not able to comment on government climate change policies. Another campaigner described the situation as follows:

> The restriction though has been for us out there, publicly, not being able to talk about our government ratifying Kyoto. So that's part of what we sign on to when we sign a contract to become a Cool Communities facilitator is that we won't speak out against the government not ratifying Kyoto. So yes, that's definitely an issue. I just think it's amazing that the government has that much power to be undemocratic and to silence us.

The conservation councils were well aware that they were being criticized for being coopted. A senior NGO participant explained, "I think we've received some criticism from within the environment movement for being involved with the

government and partnering with them on a program where in other areas in the climate policy are clearly at odds with what we'd like to see happen, for instance, not signing the Kyoto Protocol." I asked her how she responds to these critiques from the broader environmental movement:

> Our response is that we run this program; it's an incredibly successful program, it's really good and worthwhile and available. But that doesn't prevent us from … speaking out about what needs to happen in climate change policy. The [Cool Communities] staff can't but the conservation councils can and it doesn't compromise our ability to campaign and advocate. And we won't ever let it. We're not silent.

Despite the criticism, then, conservation council staff continued to defend their program. Indeed, when the government cancelled Cool Communities, it was the conservation councils staff who were severely disappointed and who fought (unsuccessfully) to save the campaign, not the government trying to continue to "silence" these groups. Why did they value the campaign so highly?

The conservation councils felt that the benefits of the program more than outweighed the risks to their legitimacy within the environmental movement. There were two main categories of benefits: direct benefits to their organizations, and the good they felt was being done by the campaign. The most direct benefit was what they sometimes called the "Cash Cow Aspect," the ability to use Cool Communities funding for purchases and hirings that benefitted the organization as a whole, such as buying digital cameras and increasing their numbers of staff members. They also appreciated the opportunity to work at what they called the "grassroots" level, directly with individuals. Furthermore, these individuals were not just their usual constituents but also new groups of people who wouldn't usually participate in an environmental

campaign. For example, campaigners began to work with people in the home repair industry to source energy efficient products. As well, campaigners developed their expertise in the area of climate change. In addition to these benefits to their organizations, they genuinely felt that the program was producing strong environmental and social benefits. Environmentally, the program achieved measurable reductions in greenhouse gas emissions. Socially, the conservation councils believed that participating in the program was a positive, community-building opportunity for householders.

Cooptation is usually viewed in the social movements literature as a negative development that robs activists of their ability to make a difference. In the case of Cool Communities, the situation is not so clear cut. Certainly, the campaign imposed serious restrictions on the conservation councils in terms of political advocacy and damaged their legitimacy with some members of the environmental movement. At the same time, campaigners felt that the goals of the campaign were both worthwhile and legitimate, and that these benefits outweighed the risks of cooptation. Overall, then, the conservation councils accepted a convergence with government as legitimate.

Legitimacy through Rebuffing and Allying

Cool Communities is not the only campaign to deal with issues of legitimacy. In this section, I broaden the scope to discuss all four of the campaigns. In particular, I show how both non-government groups and governments seek to demonstrate their

independence from one another in order to appear legitimate. On other occasions, though, they cite one another as allies, especially to bolster their moral and scientific authority. Once again, there is both divergence and convergence with regards to legitimacy. As with policy discussed above, this divergence and convergence is in part due to institutional divisions and in part due to variation in audiences.

One of the central areas where non-government groups seek to demonstrate their independence is in the area of funding. As Cool Communities illustrated, environment groups may feel that government funding is so beneficial that it outweighs the limitations that it may place on their ability to speak. However, other groups value their independence more than the funding. A David Suzuki Foundation campaigner explained this dilemma:

> If I were to write a letter to [Prime Minister] Paul Martin and say "this is what we think as the David Suzuki Foundation," I have to send that letter to all the parties because I can't be seen as having a private conversation with just one party. That's against the rules of charities. … Greenpeace decided that they were going to lose their charitable status because it was too binding, they actually felt they didn't have a freedom of speech to just hone in on one issue with the party in power. So some [non-government organizations] say forget it, I'm not going to follow that. But we've remained a charity because it's a very big deal for our members that we be a charity. But we also have a policy of not taking any money from government or corporations, so we just take from our membership or from other organizations. If we did, we'd feel like we would be tied. So this way, we can say what we want, but we have to say it to everybody.

This strategy has been relatively effective, in that the DSF is one of the larger and more well-funded environment groups in Canada. At the same time, this campaigner was very conscious of lack of funds as a "huge barrier" for putting her campaign plans into effect: "The problem is that since we're [a non-government organization] we

don't actually have many resources, we're so limited on spending any money so our biggest ally is word of mouth." Nevertheless, DSF campaigners felt that the benefits of independence outweighed the limitations on resources.

Governments at times also seek legitimacy by displaying their independence from non-government groups, again often through funding decisions. In Australia, the legitimate stand that the Commonwealth government should take with regards to the non-government sector has been a matter of public debate. This is a particularly charged issue in Australia because the government provides regular funding grants to environment organizations, particularly through the Grants to Voluntary Environment and Heritage Organisations (GVEHO) program. In recent years, the left wing think tank The Australia Institute and the right wing think tank Institute of Public Affairs have been battling over the legitimate relationship between government and non-government organizations. In their often polemical reports, the connection between legitimacy and government funding is made explicitly. In *Taming the Panda*, The Australia Institute argued that the Howard government was increasing funding for a compliant and complimentary NGO (WWF-Australia) while decreasing or even eliminating the funding of the more independent and critical organizations (ACF and The Wilderness Society) (Hamilton and Macintosh 2004, p.11-12). In this and another report *Silencing Dissent*, The Australia Institute charged that the Howard government was deliberately attempting to sabotage non-government organizations in general and environment groups in particular.

Funding for non-government organizations is a question of legitimacy for the government itself. The right wing Institute of Public Affairs claimed that

> NGO's consist of mail-order memberships of the wealthy left, content to buy their activism and get on with their consumer lifestyle. These people take out insurance against global capitalism, just in case democratically elected governments fail to tame the beast. The insurance strategy does not entitle them to a place at the negotiating table alongside governments. To do so is to deny governments their legitimacy. (Johns 1999)

The Australia Institute pointed to a funding connection between the Howard government and the Institute for Public Affairs:

> The attacks on the legitimacy of NGOs have been led by a neo-liberal think tank, the Institute for Public Affairs. The Institute's views are apparently endorsed by the Howard Government which has commissioned that organisation to conduct an audit of how NGOs lobby or work with government departments. There has been a serious deterioration in relations between the Federal Government and NGOs to the point where many believe they have been 'frozen out' and fear they will have their funding withdrawn. (Maddison et al. 2004, p.vii)

Furthermore, because the Institute of Public Affairs speaks to at least some of the supporters of the right wing Howard government, by demonstrating its independence from NGOs, the government can increase its own legitimacy. Here we can see quite clearly the role of audience. In this case, the government's audience is not environment groups but voters and sympathetic organizations such as the Institute of Public Affairs.

Yet, in contrast to this pulling away to appear legitimate, governments and NGOs also cite each other and pull together to seek moral authority. The NGOs cite the government to seem mainstream while the governments cite their connections to NGOs to seem moral. Both DSF and ACF highlighted the findings of a report

commissioned by the Pentagon, laying out alarming worse case scenarios that could result from severe climate change (Schwartz and Randall 2003). ACF in particular also works with allies from the business world. The technique is the same: by allying with industry, ACF tries to seem less extreme and more credible. The audience for this presentation of credibility can be the government, as one campaigner explained: "Yesterday what I was doing was getting friendly corporates to lobby the state government to continue its initiative in terms of carbon trading because there's been a push in Victoria to squash that saying it's bad for jobs. So we've been trying to rally the forces of light to say no to that." When non-government groups cite the government, their audience may again be the government to try and force them to be consistent. Thus, ACF was very keen to repeat the environment minister's statement that Australia should reduce its emissions by 50-60% by the end of the century, approaching their own policy recommendation to reduce emissions by 60% by 2050.

The government campaigners also seek credibility by citing non-government organizations. At the One-Tonne Challenge, campaigners were very heartened that Elizabeth May, the Executive Director of the Sierra Club of Canada, was enthusiastic about their campaign. They also hoped that NGOs would be more supportive because the Canadian government had ratified the Kyoto Protocol. One campaigner said that had the government not ratified Kyoto, "The whole environmental organization wouldn't be behind us, it would be against the government. … They saw that the government did ratify, so we find that when we are working with organizations that they'll say 'well good, at least the government is behind us' and they are supporting.

And so I find it is more a team effort between all the different stakeholders." This hopeful feeling is institutionalized through the NGO "hubs," community or regional environment groups in each province that are working with the government to promote the One-Tonne Challenge. In this case, the audience is at least in part the public. By showing that the government is working with environment groups, the government hopes to enhance its legitimacy and thus encourage the public to participate in its campaign.

Non-government and government campaigns also converge when they use science and quantification to enhance their legitimacy. As I described in Chapter 3, all the campaigns cite scientific individuals, institutions, and facts to appear credible. Both non-government and government campaigns refer to scientific bodies housed within government departments. Canadian campaigners rely on research from Environment Canada's Meteorological Service; Australian campaigners use research from the Commonwealth Scientific and Industrial Research Organisation (CSIRO). In addition, all the campaigns refer to the international governmental organization Intergovernmental Panel on Climate Change (IPCC). Furthermore, as discussed in Chapter 4, the campaigns converge by using social marketing as a more rigorous, and thus legitimate, approach to campaigning. Finally, as Chapter 5 demonstrated, campaigners "trust in numbers" (Porter 1995) to defend themselves against their detractors. In Chapter 5, I focussed on how ACF managers were the primary audience for this demonstration of legitimacy by GreenHome staff and how the Howard government was the main audience for Cool Communities. While this defensive work

is more important for the Australian campaigns, all of them try to use numbers to prove that their campaigns are successful.

At times, then, the government and non-government groups cite each other's support in order to claim that their own path is legitimate. Most often, the non-government groups cite government agreement to seem mainstream, while the government cites the non-government groups to seem moral. Government and non-government convergence, then, can enhance everyone's legitimacy. Furthermore, all the campaigns converge in using natural and social science and technologies of quantification. At the same time, they may distance themselves from one another to preserve their independence. In particular, they may reject or withdraw funding as illegitimate. How can convergence and divergence co-exist as legitimate relationships? First, as with the policy division between climate change and sustainability campaigns, here too different branches of each organization are involved. While the non-government groups and politicians diverge, the campaigns aimed at the public are more likely to cite one another as allies. This process is the most clear in Cool Communities, the campaign with the highest level of integration. Here the non-government groups were in such agreement with the government over the value of the campaign that they agreed to abandon their political goals; in other words, the non-government groups felt that their cooptation was legitimate. However, across all of the campaigns, science and quantification led more towards convergence. Second, convergence and divergence can co-exist because their presentations of legitimacy may be aimed at different audiences. Although the relationship is, as we

have seen, quite complicated and shifting, we can discern a pattern on multiple occasions. When seeking to demonstrate independence from one another, government and non-government diverge, with each other as audiences. When trying to increase their moral or scientific authority in the eyes of the public, government and non-government groups converge.

Collective Identity

In this final section, I will discuss divergence and convergence in collective identity. Once again, I will begin by discussing Cool Communities, which displays this tension most clearly. I will then turn to the other campaigns and their diverging and converging identity work. I will suggest two propositions. First, the closer the government and non-government group, the more identities diverge. Second, the more the campaign is focussed on individual and personal actions, the more the identities converge. This explains why diverging and converging identities are so prominent at Cool Communities; it is a campaign that is both highly integrated and strongly focussed on individual, personal action. This may seem like an impossible contradiction; however, it is not so because identity is often relational. When government and non-government campaigners focus on each other as their audiences, their identity work is distinguishing. When campaigners focus on the public, their identity work is broadening because they are trying to include all individuals. Because

"all individuals" includes government and non-government staff, identity can be both broadening and distinguishing within the same campaign.

The social movements literature has numerous definitions of collective identity, but there is a general agreement that “its essence resides in a shared sense of ‘one-ness’ or ‘we-ness’ among those individuals who compose the collectivity” (Snow and McAdam 2000, p.42). For many authors (e.g. Pulido 1996, Snow and McAdam 2000), collective identity is developed strategically by movement leaders in order to accomplish particular goals. In the cases presented here, collective identity is less strategic and more, as Polletta and Jasper describe it, a "cognitive, moral, and emotional connection with a broader community, category, practice, or institution” (2001, p.285). In addition, this paper adopts Gamson's view that "the locus of collective identity is cultural; it is manifested through the language and symbols by which it is publicly expressed. We know a collective identity through the cultural icons and artifacts displayed by those who embrace it” (1992, p.60).

Throughout this literature, collective identity is also described as relational; that is, it draws a boundary between the group and outsiders.[23] Taylor and Whittier argued that "the creation of boundaries" and "the valorization of a group's 'essential differences'" (1992, p.122) are two of the key factors that contribute to the formation of collective identity. For Melucci, collective identity consists of "the continuity of a subject over and beyond variations in time and its adaptations to the environment; the delimitation of this subject with respect to others; the ability to recognize and to be

[23] See Lamont and Molnar 2002, p. 169-171 for a review of this literature.

recognized" (1996, p.71). Finally, for McAdam, Tarrow, and Tilly, identities "in general consist of social relations and their representations" (2001, p.131). These social relations involve the formation of categories of actors, based in part on the invention and borrowing of boundaries (Lamont and Molnar 2002).

This boundary-drawing tendency is certainly part of the non-government groups' collective identities. In the case of Cool Communities, the conservation councils distinguish themselves from their government patrons. This paper will argue, however, that their collective identity is not only a distinguishing one. They also seek to broaden their identity to society as a whole. This is not just a form of recruitment, in which a social movement organization seeks members to share their distinctive identity. Because they want to broaden their identity to all individuals, this includes the very government funders from whom they are also trying to distinguish themselves.[24] Furthermore, unlike many other social movement campaigns, there is no common enemy that their identity is defined against. The movement's ultimate goal is for all individuals and communities to share their collective identity. As with policy and legitimacy, then, there is both a divergence and convergence between the government and non-government groups.

Strong Integration

[24] Similarly, Putnam (2000) classifies social capital as "bridging" (inclusive) or "bonding" (exclusive).

Before describing the distinguishing and broadening tendencies within Cool Communities' collective identity, there is one preliminary point that must be made. Why should it be surprising that a social movement should have an identity that distinguishes it from the government? Indeed, much of the social movements literature presupposes that social movements are by definition opposed to the state (e.g. McAdam et al. 2001). In the case of Cool Communities, however, we cannot take for granted that the conservation councils would automatically distinguish themselves from the government. They worked together on the same project for three years. Their goals, while not identical, have large areas of overlap: in particular, to work with households to achieve measurable abatement of greenhouse gases. Furthermore, they developed the Cool Communities model of community engagement together. Most remarkably, they use very similar language when discussing the campaign. These pairs of quotations are taken from different conservation council and AGO staff members, and the similarities within each pair are quite striking.

> <u>On a favourite story:</u>
> [They received] the triple A showerhead … on the Friday and then on the Monday the energy auditors came back to do some follow-up stuff, . . . not expecting that they would have put the showerhead on yet. Well, they had put it on, on Saturday morning. The woman had a house full of teenagers and she was so excited, she said "we don't run out of hot water anymore!" So it was a side benefit in terms of comfort for them.
>
> There are stories about low income householders and how liberating getting control of energy has been both because of its direct financial benefits on the household or because householders now have enough hot water so that everyone can have a shower but also the sense of social empowerment that comes along with that involvement.
>
> <u>On measuring results:</u>

> To provide credibility to the program if you are staking a name to residential greenhouse gas emissions: to prove it you have to measure it, basically.
>
> The measurable part is [our] mantra. . . . We wanted it to be a rigorous program and defend it against those who would think that it was nothing more than a feel-good public information campaign.
>
> On community:
> So often these days people are alienated, not feeling part of the community, feeling more and more isolated sitting at home watching the telly. You can get out there and engage with like minded people and the community benefits, not just the environment, there are all sorts of benefits in terms of self-esteem, you can feel good about what you're doing, it's just tremendously important.
>
> This sense of community came through time and time again, how it was bringing people together. And they were also noticing the impacts in terms of a more comfortable house and cheaper costs for running the house. It was almost like this movement, it really engendered a lot of passion. It gave people something worthwhile in their lives.

In each case the first quotation is from a conservation council and the second from the AGO. These demonstrate the integration, at the very level of language, that had occurred between the conservation councils and the AGO.

Distinguishing Identity

Yet there was a major distinction between the conservation councils and the AGO, and it revolved around the conservation councils' collective identity as sustainable consumers. One of the primary responsibilities of the conservation council facilitators was to distribute energy-saving products - such as compact fluorescent bulbs, low-flow showerheads, and draught-stoppers - to communities. Yet the

facilitators also enthusiastically embraced these products for themselves. For example, one facilitator distributed low-flow showerheads to all her co-workers. In the office, there were extensive discussions around installing the showerheads, how they worked, and which kinds were the best. In workshops with the public, the facilitator would then report in detail on the feedback from her colleagues in the form of testimonials (e.g. "my manager loved this brand of showerhead"). The recommended products were also a large part of the working environment in the office. In Canberra, the conservation council office was very cold and draughty because it was located in a small, uninsulated building on a disregarded corner of the Australian National University campus. According to the facilitator's workshops, it was best to sit next to a space heater rather than heating an entire building. In this case, the building was just one room, but there were two space heaters for each part of the office. These were plugged into timers so that they could automatically go on and off at appropriate times of the day. Unfortunately they were rather difficult to operate, and only the facilitator seemed to fully understand how they worked, so a lot of time was spent discussing and adjusting them. In the daily lives of the conservation councils, then, sustainable consumption products held a central place.

Another major consumption difference can be captured with the word "feral." In Australia, this word does not only refer to domesticated animals that have gone wild, such as feral cats. It is also used to refer to people, often environmentalists, who are "undomesticated." The head facilitator constantly referred to himself and everyone at the conservation councils as feral. What does this mean in practice? At

times the conservation council staff fetishized old products, even ones that led to worse environmental outcomes. This head facilitator, for example, drove an old car which produced large amounts of greenhouse gas emissions. At a Cool Communities dinner, the conservation council staff favourably compared this car to the more posh (newer, less polluting) AGO cars. Many conservation council staff also favoured older and more unconventional clothing. This is only partly attributable to their relatively low salaries. As one conservation council staff member explained, their clothes epitomized the differences between them and the AGO:

> I might not talk to them in the same way as I would with people from the conservation council that I work with here, just the nature of the relationship and the fact that the AGO is a government body and we're an NGO [non-government organization]. There's just a fundamental difference, I mean maybe not the actual people, but it's an unwritten concept that they support the government. There's an informality that I have with the people I work with here that I don't have with them because of the nature of the relationship. So I guess I'm aware with that, I would be more formal. If I had a meeting with them I would think more of what I would wear that day.

Their consumption choices, then, are a major way of distinguishing their collective identity from their AGO partners.

Broadening Identity

The collective identity is not only one that distinguishes the conservation councils from others. There is also a broadening aspect of this identity, one that would extend it to include their government partners and all of society. This broadening pull was on display at a major event organized by one of the conservation council

facilitators during the second round of the campaign. The event consisted of a public shower in the local downtown mall. A temporary stage was set up in the food court, and a portable shower was mounted on a pedestal with its door tied open. The facilitator invited local politicians, athletes, and media personalities to participate. Their role was to compete against each other to see who could take the shortest shower using an energy saving showerhead. The winner would receive a package of energy efficiency products, while the loser would receive an energy audit of his or her home. Instead of actually bathing in the shower, participants had to follow a series of prescribed actions, such as washing a Cool Communities bag, squeezing a rubber duck, and towelling dry. The facilitator provided all the necessary props; in addition to the bags, duckies, and towels, she also gave each participant a yellow raincoat and a shower cap. The event was attended by several local media outlets, conservation council staff and board members, AGO staff, and, of course, any passing shoppers. The head of the AGO handed out the prizes.

The goal of this event was to model the sustainable lifestyle that the program was promoting. One particular action - taking short showers with a water saving showerhead - stood in for the lifestyle as a whole. However, it was not a strict form of modelling because the actions taken by the (minor) celebrities were not exactly the same as the ones you would take at home (washing a bag instead of your hair, for example). It might better be called a dramatization: acting out a humorous and exaggerated version of real life (Benford and Hunt 1992). This dramatization can also be seen as an invitation. It welcomes us all to take up this lifestyle as our own, and

makes it seem like an easy and fun choice. In other words, it attempts to extend the conservation councils' collective identity to the audience. To the extent that the conservation councils succeed in precipitating a cultural shift, however, their collective identity would no longer be unique to them. Shoppers, people watching the evening news, and the AGO would all become sustainable consumers too.

This collective identity, then, can be distinguishing and broadening with regards to the same group. At this event, the government employees in attendance were a key audience for the sustainable consumption message. Indeed, various conservation council staff members commented that the shower was bringing the government people into the real world, into the community. On another occasion, the same conservation council staff member who described above the essential differences between the government and their NGO, as epitomized by differences in their dress, expressed a strong identification with the government's involvement in Cool Communities. She said,

> I wanted to work on something that's proactive and something that's positive because it's really hard when you're working with the environment and you feel like you're always fighting for something. … I think the whole Cool Communities experience, from the people participating at the community level to the facilitators to the workplaces and the conservation councils in their own state and territories, there's just an amazing amount of positivity. … When people say things to me, and this is in a non-work context, about the dire state of the environment and the government's position on the issues, it's just really nice to be able to talk about something positive.

Here her experience of collective identity as part of Cool Communities is broad enough to include all of the participants, regardless of their particular institutions. To

the extent that her movement succeeds in promoting sustainable consumption, this collective identity would be broadened not just to the government, but to all of us.

Identity and the Other Campaigns

What is the role of collective identity in the relationship between government and non-government in other campaigns? I would like to suggest two relationships between the characteristics of the campaign and the type of identity work. First, the closer the government and non-government groups work together, the more they assert a distinguishing identity. This is an old argument in the social movements literature, and continues to be supported here (e.g. Gamson 1975). However, this process operates not alone but alongside a second even contradictory process. Namely, I will argue that the greater the focus of the campaign on individual personal action, the greater the campaign will assert a broadening identity.

Cool Communities is a distinctive, perhaps even unique, campaign with regards to its high level of integration between government and non-government organizations. This explains the clear presence of a distinguishing identity. Since they have worked so closely together for so long, the government and non-government groups express their differences in the realm of identity. Other campaigns, though, also hold distinguishing identities. In the previous sections on policy and legitimacy, I described practices that involve both convergence and divergence of government and non-government. These practices are also strongly related to identity. Divergence

over policy and legitimacy leads to a distinguishing identity because it involves defining "us" against "them."

However, for campaigns less involved with government, this distinguishing identity is either less present or less directed towards government. For example, the Otesha Project holds a distinguishing identity but not related to government. The Otesha Project was founded by two Canadian university students while they were studying for a semester in Kenya. They assembled a group of around thirty young people who biked across Canada making presentations to students about sustainable consumption. Said one of the founders, "If we want change we should start with ourselves and be the change we wanted to see. So we wanted to break things down to everyday actions that everyone can take that will have a positive impact on the world, ensuring that every one of our choices has an impact, encouraging that conscious choices are made by our peers." Today, Otesha has a staff of twelve who are involved in various sustainable consumption projects, all revolving around encouraging youth to change their consumption behaviours and their "mindset."

Otesha staff are currently planning another round of bike tours, and these are the major distinguishing component, and a strong maker of collective identity. One of the founders explained, "There are thousands of reasons why biking makes Otesha the way it is, walking the talk is only one of them. The way it brings together a team, and the way it changes the way people perceive you when you arrive, and the physical feat itself create a lot of impacts." She pointed out that participating in a bike tour is a special experience: "There'll be 60 participants on our bike tours between the ages of

18 and 30. They'll be the ones who will be delivering the presentations, but a lot of the impacts are also on how they'll be impacted by being members of a bike team." This experience is exclusive to the members of the team. Although their presentations encourage everyone to bicycle more, only team members will participate in their bike tours across Canada. Their audience of high school students appreciates this point; according to a participant in the tours, they were treated like celebrities by the students. The distinction, then, is not with the government but with their peers.

The broadening of identity is also present in other campaigns. This is not the converse of the distinguishing identity, however. In other words, it is not the case that the less integrated, the more broadening. Rather, as mentioned earlier, the more the campaign focusses on the individual personal action, the more the broadening identity is present.

Cool Communities, then, is notable because it focusses exclusively on this form of individual personal action, or what they call the "household approach." It also specifically forbids "advocacy," lobbying, and formally political action. The form of participation that they are promoting, then, is open to everybody. Furthermore, it is a type of action centering around consumption activities, consumption being a classic marker of identity (Bourdieu 1984, Lamont 1992). In both its distinguishing and broadening forms, Cool Communities' identity work relates to consumption. However, in their sustainable consumption campaigns, Nature Challenge and One-Tonne Challenge campaigners also hold a broadening identity. As Suzuki himself explained: "If we can recruit enough Canadians to take the Nature Challenge

voluntarily then I think it will be irresistible. Every politician will have to say yes, I will join the Nature Challenge and then the pressure is on them to do something more significant." This is a form of lobbying, but it is also a claim about identity: that it is broad enough that even politicians will be able - indeed will be obliged - to take it on. Similarly, the One-Tonne Challenge manager hoped to broaden the identity of her campaign: "We are also trying to use that advertising as a way to leverage all kinds of organizations: NGOs, private sector, associations, youth groups etc. Basically join the club called the One-Tonne Challenge Club. And not just because for the sake of joining the club or for getting visibility, but really to get a sense of momentum that this is about a social change that everyone needs to be part of."

In contrast, the ACF and DSF *climate change* campaigns, which move closer and farther from government with respect to policy and legitimacy, do not exhibit this broadening aspect of identity. Not everyone can adopt the identity that they themselves hold, as experts in policy and defenders of the legitimate environmental path. This is the type of identity described in Chapter 5 on quantification. Campaigners are proud of their numbers-based approach to campaigning, but this is solely a distinguishing form of identity.

This process of coming together and moving apart occurs in the realm of identity, in addition to those of policy and legitimacy. I have called the two types of identity at work distinguishing and broadening. Because Cool Communities is the most highly integrated and the most closely focussed on individual personal action, it exhibits both the most strongly. However, even in the other campaigns, identity work

can also distinguish government and non-government or can be broadened to include each other and all of us. Furthermore, these forms of identity work can occur with respect to different audiences. For campaigns where government and non-government groups are highly integrated, the distinguishing identity includes each other as audiences. For campaigns focussed on individual, personal actions, the primary audience is the public, and the identity becomes more broadening.

Conclusion

This chapter has examined the relationship between government and non-government climate change campaigns. This question has traditionally been framed in the social movements literature as one of institutionalization: are movements characteristically extrainstitutional, central to institutional politics, or perhaps both? I have argued that the environmental movement in general and climate change campaigns in particular are certainly professionally at the heart of institutional politics. However, the environmental movement is so diverse, and it has been institutionalized for so long that the question of institutionalization is not the most pertinent one to address towards climate change campaigns. Instead, I have argued that government and non-government campaigns are closely involved with one another, but the direction of this relationship is constantly moving in different directions. In the realms of policy, legitimacy, and identity the government and non-government groups both

converge and diverge. In the area of policy, as we would expect, the non-government groups lobby their governments regarding climate change policies, especially surrounding the Kyoto Protocol, energy, and greenhouse gas emissions. In contrast to this divergence, though, there is a convergence over the use of science and the recommendations for individual, personal actions. Governments and non-government groups also seek legitimacy by pointing to their common ground; at the same time, they try to demonstrate their independence from one another, such as through rejecting or withdrawing funding. At Cool Communities, the most integrated of the campaigns, the non-government groups valued the campaign so highly that they felt that their cooptation was legitimate. All the campaigns cited each other to bolster their moral or scientific authority. Finally, the government and non-government groups converged and diverged in the realm of identity. The more closely the government and non-government groups worked together, the more they also asserted a distinguishing identity. In addition, though, the more the campaign focussed on individual, personal actions, the more they asserted a broadening identity, one that could be applied across the government and non-government groups but also to all individuals. When government and non-government groups were focussed on these types of sustainability campaigns, such as at Cool Communities, the broadening identity was a form of convergence.

Why was there such a seeming contradiction between convergence and divergence? In part, this is because the categories of "government" and "non-government" mask their institutional diversity. In the environment groups, there are

organizational divisions, such as between the climate change campaigns and the sustainability campaigns. It is the climate change group that tends to diverge over policy, legitimacy, and identity, while the sustainability campaigns converge over policy and identity. On the government side, the campaigners responsible for public participation programs like the One-Tonne Challenge and Cool Communities are not the same officials responsible for the divergent policy areas of Kyoto, energy, and emissions. Furthermore, they are not usually in a position to withdraw funding to environment groups for reasons of legitimacy. At both government and non-government campaigns, science and quantification tend to be areas of convergence. We saw in previous chapters that this trust in numbers, and in natural and social scientific credibility, affects the relationship between campaigners and their audiences. In this chapter, we have further seen how it affects relations between government and non-government groups.

As Cool Communities shows, the same groups can converge and diverge for reasons of policy, legitimacy, and identity. Even at the other campaigns, the convergence and divergence is not always done by different groups of people. When campaigners are speaking to different audiences, convergence or divergence may come more to the fore. Furthermore, campaigners from both government and non-government groups are comfortable and habituated to operating under conditions of contradiction and ad hoc arrangements. This conclusion holds implications for sociological discussions of "state-movement" relations, terms I have avoided in favour of "government" and "non-government" groups. Neither the "state" nor the

"movement" are monolithic entities that take a consistent position towards one another. Instead, their relations are conducted on shifting ground, at times moving closer together while at times moving apart.

CHAPTER 7

PUBLIC AND PRIVATE RESPONSIBILITY

Introduction

Who is responsible for action on climate change? And what sort of actions should those responsible take? In Canada and Australia, campaigners do not spend much time or effort disputing whether climate change is really happening, or whether it is caused by humans. Rather, as I have described in previous chapters, campaigners are focussed on strategies for motivating the public to take action. This work, though, is part of a larger debate over the extent of the public's responsibility for remedying the environmental problem of climate change. In this chapter, I will characterize this debate as one over public versus private responsibility. I will argue that there are two different models at work regarding the appropriate relationship between government, industry, non-government organizations, and individuals. In the first, "public" model, government holds the greatest responsibility. The types of actions for all elements of society follow from this attribution of responsibility. Government should lead, in the international arena and in regulating national industries; non-government groups and individuals should lobby government to uphold this responsibility. In the second, "private" model, the primary responsibility rests with individuals. Again, the types of actions follow from this attribution of responsibility. Individuals should make choices

in their personal lives that will have positive environmental effects. Industry will respond by supplying what individuals demand; industry can also voluntarily practice "corporate social responsibility" for its own operations. Individual government and non-government employees can lead by their example and can encourage others to follow. I will argue that the politics of both public and private responsibility are intertwined with the particular forms of knowledge used in the campaigns.

My use of the terms "public" and "private" requires further explanation. In an incisive article, Jeff Weintraub elaborated on the multiple and central meanings of this "grand dichotomy" in Western culture (1997). Weintraub explains that there are two main images underlying contrasts between public and private. First, there is a contrast of "visibility": "what is hidden or withdrawn versus what is open, revealed, or accessible" (p.5). Second, there is a contrast of "collectivity": "what is individual, or pertains only to an individual, versus what is collective, or affects the interests of a collectivity of individuals" (p.5). As we will see, both visibility and collectivity are at play in the discussions over responsibility for action on climate change. The bulk of Weintraub's article is devoted to elaborating four major traditions of public/private distinctions in Western thought. I will briefly sketch the four traditions here, and then refer to them again as they appear in later sections of the chapter. The first public/private distinction, then, is a "liberal-economistic" one between the state on the one hand and the market economy on the other. This is the distinction that is evoked, for example, in discussions of "privatizing" a former state function, such as health or education. The second distinction is "the republic-virtue (and classical) approach,

which sees the 'public' realm in terms of political community and citizenship, analytically distinct from *both* the market and the administrative state" (p.7). The third approach, following thinkers such as Philippe Ariès and Jane Jacobs, sees public as the sphere of sociability, in contrast with the private sphere of domesticity. Finally, the fourth approach is feminist, which distinguishes between the family as private and the larger economic and political order as public. Weintraub cautions that the use of the concepts of public and private is usually an attempt to dichotomize the social world into pure, binary categories. This is certainly not my purpose here. Instead, I use the categories of public and private to characterize different models of governance at work, which are not pure or clearly distinct, but rather operate within the same climate change campaigns.[25]

Public and Private Models of Governance

In *Powers of Freedom*, Nicolas Rose writes about a transition in Anglo-American countries between two forms of governance in the last decades of the twentieth century (1999). In the 1950s and 1960s, the predominant model was that of the "welfare state." In the welfare state model, an effective, expert and responsible

[25] I have used the term "public" throughout this study to refer to campaigners' audiences. This should not be confused with "public responsibility" as defined in this chapter. The multiple uses of the term public within this text only serves to reinforce Weintraub's argument that the terms public and private hold a wide variety of contradictory meanings (1997). To reduce confusion, I have in this chapter used the term "individuals" instead of "the public" wherever possible. However, I retained both uses of the term public (as in the public sphere, and as in public responsibility) because I did not want to lose their broader cultural connotations by replacing them permanently with less expressive terms.

state takes responsibility for the well-being (or "welfare") of its citizens. Although Rose does not focus on non-government organizations, we can infer that one of the central roles of civil society was to lobby the state or to mobilize citizens to lobby the state so that it would fulfill or expand its responsibilities. Much of environmental campaigning falls under this rubric, demanding that the state take responsibility for mitigating problems caused by environmental degradation. The welfare state model especially applies to "welfare" considerations, such as environmental threats to human health and the national economy. However, the "welfare" formulation does not capture the more deep ecological elements of environmental claims, that non-human entities such as plants, animals, and the climate system have intrinsic rights to protection from human interference. Furthermore, the "welfare" formulation refers especially to a relationship between the state and individuals. I have a broader focus which includes these groups but also industry and civil society. I have therefore chosen the term "public responsibility," which nevertheless shares the welfare state assumption of the government holding primary responsibility.

Rose argues that, in the 1970s, the form of governance began to shift towards a model he calls "advanced liberalism." Margaret Thatcher in the U.K. and Ronald Reagan in the U.S. were pioneers of this form of governance. In advanced liberalism, according to Rose, "the relation of the state and the people was to take a different form: the former would maintain the infrastructure of law and order; the latter would promote individual and national well-being by their responsibility and enterprise" (1999, p.139). I have used instead the term "private responsibility" in order to

complement "public responsibility," and again to include a broader focus on the role of industry and civil society. Still, as we will see below, private responsibility is a distinctively advanced liberal formulation.

Rose cautions that advanced liberalism did not simply replace the welfare state. Rather, he sees this as a "complexification," where elements of both models are still in operation. Similarly, notions of public and private responsibility are both at work in climate change politics. My research cannot cover all aspects of climate change politics, though; instead, I focus on discourses and practices of public and private responsibility that are specifically relevant to climate change campaigns aimed at the public.

Public Responsibility

In this section, I will describe the roles of government, non-government organizations, and individuals under the model of public responsibility. Government is primarily responsible for action, both internationally and nationally. Non-government organizations and individuals lobby government to uphold their responsibility. This is "public," then, in the "liberal-economic" sense of the state as opposed to the private realm of the market. It is also public for non-government groups and individuals in the classical sense of the realm of political community. We

can also see the public themes of both collectivity, led by the state, and visibility, conducted in the sphere of politics.

Government Leadership

Policies on the Kyoto Protocol have been a touchstone of government responsibility for both Canadian and Australian climate change campaigns. Looking first at Canada, the One-Tonne Challenge was born in the context of Prime Minister Jean Chrétien's decision to ratify the Kyoto Protocol. The Chrétien government went through several exercises to demonstrate broader public support for ratification. The public service was asked to develop a draft plan with different options for meeting Canada's Kyoto target of reducing greenhouse gas emissions by 6% below 1990 levels by 2008 to 2012. After public consultations, one of the options was selected and then developed into a plan for meeting the Kyoto target, called the *Climate Change Plan for Canada* (2002). Chrétien then brought the issue of ratifying Kyoto to a vote in the House of Commons.

It was in the *Climate Change Plan for Canada* that the One-Tonne Challenge was officially introduced, tying the campaign directly to Canada's Kyoto responsibility. This connection has continued as the One-Tonne Challenge was implemented. First, at the office, some One-Tonne Challenge campaigners and many of their Environment Canada colleagues display "trophies" of the Kyoto ratification. Those who helped with this process received special lanyards for their security badges

saying "Kyoto Protocol Ratification Ratification du Protocole de Kyoto 17/12/02." They were also given framed plaques for their office walls; the plaque is a copy of the cover page of the *Climate Change Plan for Canada*, signed by the Prime Minister and the Environment Minister. More importantly, many campaigners conceptualize the purpose of the One-Tonne Challenge campaign in terms of this Kyoto goal. A manager described her campaign in this context:

> The One-Tonne Challenge is a national call to action for individual Canadians to take part in the climate change commitment that Canada has made through ratification of the Kyoto Protocol here. It is intended to engage Canadians in the national effort. Much of our activities to date have been focused on business and industry. And though we have a mix of programs designed to impact them individually, we haven't brought that together in a collective sense. So this One-Tonne Challenge is that opportunity for Canadians to see that there is a role for them to play and to gain a better sense of what that role is.

This conception of the campaign was incorporated directly into the design of the One-Tonne Challenge materials: "The tag line 'One-Tonne Challenge: Take Action on Climate Change' [is] coupled by a solitary maple leaf because people also wanted to know that this is a Canadian challenge. And we know that Canadians respond well, they have national pride." Expressing a sense of public responsibility and government leadership, a One-Tonne Challenge campaigner argued: "I think that it is important that the Ministers and Prime Minister be knowledgeable of climate change and willing to put money in it to make it a national goal. To make it more important so that everyone wants to do their part."

Even in Australia, though, the Kyoto Protocol is an important sign of government responsibility for taking action on climate change. Despite the fact that

the Howard government has refused to ratify the agreement, it insists that it is taking meaningful action. As one Australian Greenhouse Office public servant explained, "The current government has chosen to characterize the opposition parties and Kyoto as a symbolic gesture and to say that instead they're focusing on actually delivering abatement rather than the symbolism of signing an international convention that they're not committed to enforce." However, Kyoto is important enough that they feel they cannot dismiss its goals entirely. Instead, they are focussing on the goal of meeting the Kyoto target and abatement (reducing emissions). This is the context in which the government campaign Cool Communities operates. The manager of Cool Communities put it this way:

> The current government is opposed to ratification, so it's spending a lot of time and effort on abatement. … And the government's position on Kyoto is a confusing one to explain to the general public, it's a confusing one to explain to an international one, but it certainly hasn't stopped us actually doing something about abatement and that's … what we focus on. …Whether we would or wouldn't like a government with a more coherent national and international policy is in some ways irrelevant from working on on-the-ground abatement.

This is in contrast to Canada, where perhaps because of the decision to ratify Kyoto, the government has been slow to implement programs to reduce emissions. Indeed, while Canada is aiming for a target of 6% *below* 1990 levels, in 2003 its emissions were 24% *above* 1990 levels (Canada 2005, p.42).

Furthermore, the entire One-Tonne Challenge campaign has been criticized, both (in private) by its own employees and especially by Canadian environment groups, because it does not demonstrate sufficient public responsibility. The grounds for this criticism are that the government should use its powers to legislate and

regulate, rather than "downshifting" responsibility to individuals. One young employee at the One-Tonne Challenge, who was generally positive about the campaign, expressed concern that governments (federal and provincial) were abdicating their responsibility:

> But, I don't know, it's like we're telling people to do their tonne and to be environmentalists and to save energy. But then you look at the T.V. and there are all those ads for SUVs and four-by fours. I know I should not say that, but sometimes I feel like government is saying one thing and is not doing it. There could be laws against some stuff, some SUVs. Just like in Quebec. There is the Lotto Quebec, lottery bank. They are having those Christmas tickets and you can win SUVs. It's like, it just makes no sense. … It's the government of Quebec promoting the SUVs and on the other hand telling people to reduce their emissions. It's like two different stories.

If a government employee has doubts about whether the government is using its powers sufficiently, the environment groups certainly do.

Non-Government Organization Lobbying

Both Greenpeace and the David Suzuki Foundation parodied the One-Tonne Challenge to call for greater government responsibility. Greenpeace started a campaign called "The 240 Million Tonne Challenge," which refers to the expected gap between Canadian emissions and the Kyoto target. The campaign encourages individuals to send letters to their Members of Parliament, "asking the Canadian government to pitch in, do their part" (Greenpeace 2005). The David Suzuki Foundation is also asking the government to shoulder its responsibility. In David Suzuki's weekly column, and in the Nature Challenge newsletter, the organization

warned that if the government did not take strong action, individuals' responsibility would rise much higher than one tonne: "Prime Minister Martin has paid a lot of lip service to the concept of sustainability. Kyoto will be a big test as to whether or not his government takes the concept seriously or just uses it as smoke and mirrors while the real polluters continue with business as usual. And if that's the case, expect to see a "Ten Tonne Challenge" in the near future" (Suzuki 2005b).

In Australia, non-government organizations agreed that Kyoto had strong symbolic value and criticized the government in those terms.[26] One Cool Communities staff member characterized Australia's ratification decision as follows:

> It's as much about symbolism as substance. The Environment Minister David Kemp keeps saying that Australia is going to meet its target which was agreed at an increase of eight percent. So we'll be meeting our obligations under Kyoto even though we haven't ratified it. But I think it's the symbolism of not signing it that's really the important thing, of saying we don't need to be part of the world community, we can go off and sign this agreement with the United States and do our own thing effectively. I think it's a bit of a snub to the United Nations system, and to the sort of internationalism that underpins this whole framework convention.

ACF was also consistent in advocating for Australia to ratify Kyoto. The Executive Director of ACF, Don Henry, was even nicknamed by his colleagues "Don Kyoto" because of his defence of the treaty. He too argued that, symbolically, it was important for Australia to ratify: "I think Australia's existing stance has given a piece of comfort to the U.S.' isolated position on this…So it won't mean a huge amount on

[26] The one exception might be Friends of the Earth, often on the margins in the environment group community. According to an ACF staff member, Friends of the Earth thought that Kyoto was a "farce" because the target was 108%; instead, they felt Australia should aim for a 50% cut. He described this as the difference between the "realistic" groups, which thought Kyoto was a good first step, and the "radical" groups, led by Friends of the Earth. All of the large and well-known groups fell into his "realistic" camp.

the global arena but it does mean something in what leverage we have in global politics, probably as significant to Canada." Henry argues, though, that in terms of emissions reductions, Kyoto is only a small first step and that emissions need to be reduced by 60-70% below 1990, not 5% overall as is the Kyoto developed country target. Henry explained, "I would like to see international action matching and achieving that. So I've got a very strong view on what we should be achieving as a community of nations. I've also got a realistic view of the importance of getting some first step in place. Because people can talk about this until the cows come home and emissions will still be going up." What is the role of Australia? For Henry, "Australia is a small to medium power with a relatively small population. Our gross emissions are relatively small on a global scale but we should all be doing our bit." We can see his notion of the Australian government's public responsibility through his language of "all doing our bit" and the "community of nations."

Individual Lobbying

In the public responsibility model, the role for individuals is, like non-government groups, to lobby the government to shoulder its responsibility. Among the non-government campaigners, there was a generational difference over this question. In this section, I describe campaigners who are older activists accustomed to the welfare state and public responsibility. In the next section, I will turn to the

younger campaigners who grew up under advanced liberalism and tend to advocate for private responsibility.

The most important form of individual action according to the public responsibility model was traditionally "political." For this reason, a young campaigner's proposal to start a campaign aimed at personal choices and consumption was met with skepticism by ACF's senior management. These older campaigners were trained in environmentalism in the early battles of the movement, especially the iconic fight to save the Franklin River, which was won through federal government intervention (Doyle 2000, Hutton and Connors 1999). They eventually came to accept the GreenHome campaign on the grounds that the personal actions would be just a first step, which would then lead to more individuals becoming supporters of ACF and participating in lobbying. One manager described this strategy: "There's only so much individuals can do before they hit the brick wall of social structural constraints, the way we produce our energy, water and the way we dispose of our waste, and it's really only industry and government that can change those things. So we want people to say, I've done my bit but it's not good enough so I want government to act and do better so I can do better." Even for campaigns that involve other types of "private" actions, then, according to the public responsibility model, these are only means to the end of government leadership. As David Suzuki put it about his own organization's campaign, "I think what we need desperately is political action. We need regulation and laws and government is very reluctant to do that but if we can recruit enough Canadians to take the Nature Challenge voluntarily then I think it will be irresistible.

Every politician will have to say yes, I will join the Nature Challenge and then the pressure is on them to do something more significant." If responsibility is public, then the individual's role is to constantly remind the government of this fact.

Private Responsibility

As I described earlier, Rose defines advanced liberalism as a form of governance in which individuals replace the state in holding the primary responsibility for their own well-being, and indeed the well-being of their nation (1999). The central form of action associated with this responsibility is not lobbying government, as in the public responsibility model above; rather it is action in the realm of domesticity and consumption. This is "private," then, because it relates to both the household and the market, two of Weintraub's definitions of the term. It is also private in the sense that it not *collective*; however, the campaigns do make this form of private responsibility *visible*.

Individual Action

In the campaigns discussed thus far, notions of public and private responsibility are often intermingled. To illustrate private responsibility more clearly, then, I will focus on the Canadian campaign The Otesha Project. However, this

campaign's sense of private responsibility is also present in the other climate change campaigns, if in a more mixed form.

The Otesha Project is a youth-run campaign, developed by two Canadian university students on a trip to Kenya. This youth presence is not a coincidence; in general it is the younger campaigners who advocate private responsibility, having grown up under the governance assumptions of advanced liberalism. As Rose explains, though, advanced liberalism did not replace the welfare state; the two forms of governance coexist (1999). Even younger campaigners, then, are obviously familiar with welfare state norms. This explains why one of the founders of Otesha could experience a process of "conversion," from a more public to a more private notion of responsibility. She explained that before her trip to Kenya, "I really cared about the issues and thought something should be done but it wasn't necessarily me who should do it." She then experienced a dramatic shift towards a sense of private responsibility:

> When [we] were in Kenya we saw a lot of misconstrued good intentions. There were a lot of government programs there that were actually causing more harm than good. And it just seemed that, as one young person without a lot of power, how am I going to change government, how am I going to change industry, and even if I could, do I really understand the implications of that? And starting with myself it was so much more clear. I knew I could make a difference right at that very moment. I was changing things and any change needed to start with me. It moved me from a place where I didn't think I had a lot of power to a place where I had a lot of power that I never even knew I had. That was an amazing transition for myself that in recognizing that we really wanted to bring that to other young people. Thinking about the potential of all these young people buying fair trade coffee, that has a lot of potential, so I think that the grassroots is where it works for me rather than government or industry.

She is describing a specific relationship between the state and individuals, in which individuals are more competent and responsible, and the power rests with them. In other words, she is expressing a sense of private responsibility.

The Otesha Project also exemplifies another private responsibility premise. Rose explains that in advanced liberalism, "the relation of the social and the economic is rethought. All aspects of *social* behaviour are now reconceptualized along economic lines - as calculative actions undertaken through the universal human faculty of choice" (1999, p.141). In Otesha, the primary mode of action is to "vote with your dollars," by purchasing fair trade coffee for example. Thus the social activity of changing the world becomes an economic one, of better shopping. Democracy is carried out using dollars as ballots.

The Otesha Project illustrates not only a generational difference but also an institutional difference. That is to say, regardless of the age of the campaigners, some of the campaigns are so strongly organized around private responsibility principles that all the campaigners may embrace this approach. This is the case at Cool Communities. A long-time older environmental activist even went so far as to question whether working with individuals might even be as or more important than working with industry:

> The government has said to us that we can achieve much greater reductions if we target industry and that might be true, but they've also put a lot more money into achieving that. But you know the ripple effect is something that's hard to quantify. From reaching quite a significant proportion of the Australian community. Perhaps the number of communities has been pretty small but the ripple effect through outreach, through word of mouth, through media, I think has been quite significant.

In other words, he is criticizing the public responsibility notion that government should take the lead, especially in targetting industry. Instead, he feels that reaching individuals, the leaders in private responsibility, is more significant.

Corporate Social Responsibility

What is the role of industry when the primary sense of responsibility is private? Government officials in both Canada and Australia argued that industry should not be seen as responsible for producing what individuals want. These were arguments made by corporate representatives that these government employees seemed to have taken to heart. Regarding the origins of Cool Communities, a manager explained, "We had a lot of programs focusing on industry and all of the responsibility was lying with industry when in fact Australian households had the highest emissions of anywhere in the world and yet all of the responsibility is with industry. So that was also something that appealed to industry … working with households to take action as well." The origin story of the One-Tonne Challenge was remarkably similar.

> Industry was very anxious to see as much of the kilo obligations put on the backs of others as it were rather than themselves and were arguing very vehemently that … addressing our greenhouse gas emissions should be almost entirely a demand side issue. And there really shouldn't be much concern at all on the supply side. They - and I'm making a very broad statement when I describe all of industry as a solitary voice in 'they' - but they would argue that they are merely producing what the consumer demands, what society or the markets

> demand. … They were expecting some quid pro quo if they were going to be expected to take on an obligation.

Many Canadian government officials saw the One-Tonne Challenge as, at least in part, a response to this legitimate concern that industry was merely supplying what individuals were demanding.

If there was any role for industry to play, it would be to voluntarily practice "corporate social responsibility." ACF in particular was following this model with regards to industry. Although they were criticized in some quarters for "greenwashing" corporate images (Beder 2002), ACF had developed what they considered to be a successful partnership with the agricultural company Southcorp, to work on issues of land and water degradation. Building on this success, ACF began a corporate-related initiative in the area of climate change. Their "Business Leaders Roundtable" is made up of major corporations, such as insurance companies and banks, that will look towards the future of a climate change-friendly economy. The private nature of this form of action is evident in the Roundtable's approach to Australia's Kyoto policy. The Business Leaders Roundtable is looking at future economic scenarios for the years 2010, 2020, and 2030. As the organizer of the campaign explained, the Roundtable will not be involved in the Kyoto debate:

> That's one of the requirements of most of the companies - they're really edgy about taking on the government over Kyoto. That's why it's aimed at 2010, 2020, and 2030. Go beyond Kyoto, make it as we term it Kyoto neutral. … We're supporting Kyoto and they all acknowledge that, but this is a medium to long term planning issue that Australia isn't addressing, is the stand we're taking. The participants recognize our constraints but, by the same token, we're guarded by our, we want to see Kyoto ratified, some of them want to see Kyoto ratified, all of them would quietly like to see it, but don't want to appear to take

> the government on. So they'd rather make it more of a piece of blue sky gazing.

According to this approach, then, industry will confine itself to the "private" realm of market relations.

Government by Example

What role remains for government? Rather than using its powers to regulate, the government can lead by example through its own "private" operations. For example, the One-Tonne Challenge has joined an existing government program known as "Federal House in Order." Through this program, "the eleven departments and agencies which account for 95 percent of federal emissions have agreed to collectively meet a target of reducing [greenhouse gas] emissions within their operationsby 31% from 1990 levels to 2010" (Canada 2006). The One-Tonne Challenge is also conducting "inreach" to encourage public servants, especially those at Environment Canada, to take the One-Tonne Challenge: "But we are also strategizing how to communicate with government employees because I think that it is very important that when we ask people to do something that we also act accordingly or even act as leaders. More so, Environment Canada take a leadership role between all the departments, have their employees act in a manner that is in keeping with what we are asking Canadians to do." The campaign also profiles public servants as models for the public through the section of their website called "Government Offices and Employees Walk the Talk." This page describes government employees such as "Recyclin'

Randal," who moved downtown, sold his second car, and became an advocate for recycling at his office (Canada 2004c).

This leadership approach is also practiced by non-government organizations. Most non-government employees try to "walk the talk" by taking private responsibility for their own environmental actions. On an institutional level, both DSF and ACF try to lead by example. DSF made a point of concentrating all of their employees in Vancouver "to conserve resources." ACF led a consortium of organizations in building and occupying a "green building" that would have a low ecological footprint and showcase behavioural and technological improvements.

Responsibility, Politics, and Knowledge

Both public and private responsibility are characterized by particular forms of politics. In this section, I analyze public responsibility as a form of citizenship and private responsibility with regards to democracy, consumption, and moral reasoning. Furthermore, I argue that forms of knowledge in the campaigns are linked with forms of responsibility.

The Politics of Public Responsibility

The politics of public responsibility can be characterized as part of the politics of citizenship, both within and between nations. Citizenship is a broad term, covering a wide variety of meanings under its umbrella. I will begin, therefore, by looking at some of the common meanings of citizenship, as described in a survey by Gershon Shafir (1998a). Shafir starts by describing the origins of the concept of citizenship. In the Greek city-state, or *polis*, citizenship represented a voluntary civic community in which "collective rational and moral deliberation over a common destiny is its own reward" (1998a, p.3). In the Roman empire, citizenship became a legal status that provided protection from arbitrary rule. With the rise of states and cities, the white male bourgeoisie became the first modern citizens. Since then, citizenship has expanded to incorporate others in society. In the liberal view, citizenship consists of a status which confers rights and responsibilities upon members of a state. However, Shafir describes how this widespread liberal view has been critiqued by five schools of thought which articulate a more collectivist view of citizenship. First, inspired by the Greek *polis*, the Communitarian critique contends that citizenship "should be an activity or a *practice* and not, as liberals hold, simply a *status* of membership. Precedence is to be given not to individual rights but to the pursuit of the common good" (Shafir 1998a, p.11). Second, the Social Democratic critique, as articulated by T. H. Marshall, holds that citizenship is a process of expansion of rights and incorporation of new groups into the modern state, from civil rights, to political rights, and finally social rights. Third, the Nationalist critique argues that the framework for citizenship is through institutions of the nation, and the transformation of the state into

a nation-state. Fourth, Immigrant and Multiculturalist critics, such as Will Kymlicka, maintain that there is a fourth citizenship right that is cultural, which allows immigrant groups to be incorporated without denying their cultures (Kymlicka 1995). Finally, the Feminist critique argues that there is a "male bias in citizenship tradition - found in the dichotomy between the private household (*oikos*) and the public sphere (*polis*)" (p.21). After surveying these debates, Shafir concludes that all these forms of citizenship discourses can be present within a single society, and that there are really "multiple citizenships."

Public responsibility, then, isa politics of citizenship in two senses. First, it draws on the Greek *polis* tradition and its more recent Communitarian incarnation both within and between nations. At the national level, campaigners operating with an understanding of public responsibility see individuals as part of a civic community that has a duty to deliberate rationally over its future, led by its elected representatives in government. Furthermore, as Communitarians contend, this form of citizenship is centrally about *practices*; it is not merely a status of membership. This view was clearly expressed by ACF's director:

> We've always been there urging people to write letters to politicians, ring politicians, write letters to the editor and so we've highlighted what people can do in their own lives as part of their civic duty or civil society in Australia. And that at the end of the day is the most important because an individual does not have the same political clout as the whole government. And governments are supposed to be of the people, by the people, for the people, and they need to be reminded of that constantly. And so that's the work that saves the Franklin, that's the work that saves the Barrier Reef, that's the work that will eventually get the Australian government to ratify the Kyoto Protocol, that's the work that will eventually get a good strong policy set in place in Australia. So I'd still put that as the number one work. And that is

> outreach that helps to empower people to do something that makes a difference.

Henry links particular practices, such as talking to politicians and contributing to the press, with a civic duty to ensure that the government is "of the people, by the people, for the people."

However, this public responsibility presumption of government leadership departs from the *polis* tradition in that governance is not truly carried out by free and equal citizens in conversation with one another. At the international level, though, this model does prevail in discussions of the Kyoto Protocol. Each nation is seen as an equal party that must "do its bit." Canada ratified Kyoto, according to this citizenship view, in order to be a good international citizen. Even Australia, which rejected Kyoto, is trying to be seen as a legitimate international citizen by achieving its Kyoto target in terms of emissions reductions.

Second, public responsibility involves a notion of citizenship based on increasing inclusion. Marshall argued that citizenship was a process of expansion in which civil, political, and social rights were expanded to more groups within society. Multiculturalists have added a new cultural right to this list. Climate change campaigns, as part of a broader environmental movement, seek to add what might be called ecological rights, and to add non-human constituents to this community of citizens. As Deane Curtin wrote, "ecological citizenship requires that we see our moral identity as partially defined by public practices whose internal goods allow us to achieve cooperative goods for the more-than-human community" (2002, p.303). These non-humans might include the polar bear in Canada, the penguin in Australia,

and the climate system globally. Foucauldian scholars have described this incorporation of non-humans as an extension of biopolitics, or as "green governmentality" (Luke 1999, Darier 1999). As with the notion of "ecological citizenship," green governmentality means that the scope of governance can be widened beyond the realm of humans. Similarly, from within the STS community, Latour has argued that environmentalism represents an opportunity to consider the pervasiveness of human / non-human hybrids (Latour 1998, 1999). Public responsibility too involves responsibility beyond only the human community.

The Politics of Private Responsibility

Weintraub describes one of the central meanings of "private" as non-political, occurring especially in the personal and domestic realm. However, this is clearly not the case for "private responsibility." It is inherently political in the sense of the feminist slogan that "the personal is political." But what type of politics is this?

Campaigners view private responsibility as essentially democratic, in the sense that participation is open to everyone. As one Cool Communities campaigner put it, with public responsibility approaches "it seems like it's someone else's problem or it's too big a problem to have any impact and it's just too hard." Unlike government and industrial action, personal action can be done by anyone. I opened Chapter 1 with a quotation from a Cool Communities campaigner describing the essence of his

campaign. When we revisit this quotation, we can now see that he is expressing the view that private responsibility is essentially democratic:

> It's just incredibly important, and I think it's part of enhancing democracy in a way. … A lot of people just feel powerless, they feel overwhelmed, they think 'Yeah, I can watch it on the news, but I'll leave it to the big boys because there's nothing I can do'. Now a program like this says 'Yeah, you can be powerful, or you can make a difference in your backyard. And you don't have to be a millionaire, you don't have to be a minister you don't even have to be a senior bureaucrat or a leader in industry, you can just be you. You can get out there and change a light bulb, and you can put a draught sock under the door, and you can put a pelmet on those curtains and hey you can even put in solar hot water and that might cost you a bit more initially but over five years we can guarantee you that you'll get your money back and you can cut your bills in half. Hey, you're making a big difference, and you're saving heaps of money.' It's been received so positively for that reason.

I have allowed this campaigner to speak a little longer than he did in Chapter 1. In the latter half of this quotation, we see that the form of action is fundamentally linked to personal consumption and even personal gain (because participants can save "heaps of money"). He goes on to tout the advantages of this form of participation in contrast to working in the public sphere with elected representatives: "People are enjoying it, they're enthusiastic. That's the other thing, if you can get people to have fun on the journey, it's not all deadly serious. You don't have to sit there and listen to these politicians droning on."

However, although individual and even monetary gain is a promoted side benefit, there is also an element of altruistic discourse in private responsibility. Indeed, campaigners conceptualize their participants' actions in profoundly moral terms. A One-Tonne Challenge campaigner pitched participation in the campaign to

exhibit-goers on those very grounds. She recounted how she said to people at exhibitions "Would you like to have tips on how to save energy at home and at work? And by saving energy you are also saving money, and you are *doing a good deed for the environment*." Similarly, a Cool Communities campaigner spoke of the importance of including low-income households in the campaign, not on the grounds that *they* need help but rather on the grounds that it allowed them to make a moral contribution themselves:

> What we often find with disadvantaged people is that they're often offered things for improving their own lives, but they often remained incredibly disempowered or feeling that they are behind or unable to contribute to the community in any way or take responsibility for wider community issues. This is the only program I've ever been in involved in where they are offered options in terms of taking personal responsibility but, while they do, they're also doing something for the wider community by *doing something really great for the environment*.

This form of moral reasoning is clearly linked to particular practices. In other words, the campaigners are advocating very specific ways of "doing a good deed for the environment." As discussed earlier, these practices incorporate particular behaviours, such as walking or taking a shorter shower, and specific technologies such as compact fluorescent light bulbs, energy efficient washing machines, and online emissions calculators. This morality, though, is essentially voluntary and individualistic. Each person can choose to "do a good deed" from the menu of possible personal actions and objects recommended by the campaigns.

Responsibility and Knowledge

Public and private responsibility, then, are implicated with particular kinds of politics. In addition, public and private responsibility are associated with the forms of knowledge used in the campaigns. In Chapter 3, I described how campaigners share climate change science with their audience in order to motivate them to take action. This presumes that the public is essentially the same in character as the campaigners because the public is capable of understanding what campaigners understand and acting in the way that campaigners would like them to act. We can now see the citizenship implications of this approach. As in the Communitarian view of citizenship, the public is made up of rational equals, and the actions are taken in the public sphere, such as writing letters to politicians. These types of actions are of the same kind as the actions of campaigners because they involve lobbying. Furthermore, campaigners share the predicted impacts of climate change on human health and the economy, but also on non-human members of the community such as polar bears and penguins. The use of natural science in campaigns and the politics of public responsibility are thus particularly compatible. It is also possible, though, for campaigners to operate under a model of *private* responsibility when using climate change science to motivate the public. Individuals can rationally understand climate change science, and can be motivated to take action on climate change, but the type of action that they take could be led by individuals in the domestic sphere. In other words, if you want to protect penguins, you could either write letters or buy new light bulbs.

In contrast, when campaigners use social marketing to motivate the public, the model of responsibility is always *private*. As we saw in Chapter 4, in social marketing campaigns, the knowledge of campaigners and the public is fundamentally different. Campaigners use the techniques of social marketing to move the public to action, without the participants necessarily understanding why they are taking these actions. Thus although the campaigners view this form of participation as more accessible, it is also more fragmented because each person may be participating for different reasons. Furthermore, the public's participation can only occur in the domestic sphere of personal actions led by individuals. Action in the public sphere, such as lobbying, is not possible if the campaigns bypass the knowledge and rational involvement of participants. Thus while climate change science in campaigns is compatible with public and private responsibility, social marketing necessarily requires a model of private responsibility.

Conclusion

This chapter has addressed the question of who is responsible for action on climate change, and how that responsibility is associated with characteristic forms of action. Under the model of public responsibility, the government holds primary responsibility, both internationally and nationally. Non-government organizations and individuals lobby the government to ensure that it does not shirk its duty. The politics

of public responsibility involve practices and discourses of citizenship, in both the Communitarian and inclusivity traditions. Under the model of private responsibility, in contrast, individuals take the lead. They are asked to take action in their personal lives, in the realms of domesticity and consumption. The role of industry is to supply what individuals demand, or perhaps, more ambitiously, to voluntarily demonstrate corporate social responsibility. Employees from both government and non-government organizations can set an example through their individual and organizational practices. The politics of private responsibility involve expanding participation by making campaigns as widely accessible as possible. Private responsibility offers the possibility for individual gain, such as through saving money, but also individual altruism, by choosing to "[do] a good deed for the environment."

Finally, climate change campaigns under models of both public and private responsibility are centrally intertwined with distinctive forms of knowledge. When campaigners rely on the natural science of climate change to motivate the public, the form of action is characteristic of public responsibility because the campaigners and the public are in principle equally knowledgeable. It is also possible, though, for individuals who understand climate change science to take private responsibility. When campaigners rely on social marketing, however, the form of action is characteristic of private responsibility because only the campaigners have knowledge of the purpose behind the campaigns. Campaigners may choose social marketing because it tells them how to change the world. As we have seen, though, there are

political implications to this choice of motivation strategy. By relying on social marketing, campaigners also promote private responsibility.

CHAPTER 8

CONCLUSION

Introduction

As this project was drawing to a close, two well-known Australians visited Canada to talk about climate change. Zoologist and author Tim Flannery stopped in Ottawa on his North American tour to promote his latest book *The Weather Makers* (2005). In speeches at the National Library and Environment Canada, Flannery warned Canadians of an imminent climate crisis. Newspaper reports focussed on the usual Canadian climate martyr: "Polar bears will be extinct within 25 years as global warming shrinks the ice cover they depend on for feeding and giving birth, a renowned Australian scientist says" (Bueckert 2006). Just a few weeks later, Australian Prime Minister John Howard addressed a rare joint session of the Canadian House of Commons and Senate. Among other topics, Howard promoted the voluntary Asia Pacific Partnership for Clean Development and Energy as an alternative to the more stringent Kyoto Protocol (Howard 2006). Two things are equally clear from these speeches: the issue of climate change is not going to go away, but nor is it going to be easy to find a common solution.

In this context, climate change campaigns seem likely to continue to play an important role in Canadian and Australian efforts to tackle climate change.

Campaigns aimed at the public can serve multiple purposes. They can try to raise awareness about the causes and consequences of climate change. They can try to elicit new patterns of behaviour among individuals, such as walking instead of driving, and encourage the use of new technologies, such as energy efficient appliances. They can offer opportunities for citizens to take part in a national project to meet environmental goals. They can help create new cadres of political activists lobbying government and industry for stronger action on climate change. In this concluding chapter, I summarize how campaigners go about meeting these varied goals. I then offer empirical, theoretical, and policy reflections on the concepts of the public and scientific citizenship, as ways of exploring the implications of this study. Finally, I conclude by outlining avenues of future research and by imagining the future of climate change politics.

Summing Up

In Chapter 1, I set out three main research questions. First, what is the role of science in climate change campaigns? Second, how does the type of institution affect the campaigns, principally with regards to the role of science? Third, how does the national policy environment, particularly Canada's ratification and Australia's rejection of the Kyoto Protocol, affect the campaigns, especially regarding the role of science,

and does this differ by type of institution? In this section, I review my findings under each of these three categories.

Campaigns and Science

To restate the first question, then, what is the role of science in climate change campaigns? Climate change is clearly a science-based environmental problem. Climate change science describes the nature of the phenomenon and makes predictions about its likely consequences. To motivate the public to take action, campaigners rely on expert scientific individuals, institutions, and facts. Campaigners use this approach to motivation because it enhances their own credibility to rely on scientific authority. Despite the potent attacks on climate change science, campaigners still employ the traditional environmental movement technique of basing their claims on scientific evidence. Beyond credibility, though, campaigners use climate change science when they view the public as similar in character to themselves. Just as they are lay people with regards to climate change science, just as they learned to understand this science, and just as they care about climate change, so too can the public understand this science, respond in a moral fashion, and take action as a result. However, despite the centrality of science to the issue of climate change, climate change science plays a marginal role in campaign publications and in the daily lives of campaigners. In part, this is because climate change science is completely taken for granted, accepted, and

tacitly understood by the campaigners. In part, though, campaigners are beginning to doubt whether climate change science is sufficiently motivational.

Instead, campaigners are turning to the social science of social marketing. Unlike climate change science, social marketing answers campaigners' very pressing questions: who is out there, and how can we persuade them to change? Rather than changing the public's understanding, social marketing tries to operate directly on public behaviour, by asking the public to undertake tasks that are personal, practical, and measurable. The public's actions, then, are confined to their pre-existing concerns and values, and to the domestic sphere. In contrast, the campaigners work closely with social marketing experts and indeed can be seen as social marketing campaign experts in their own right. Unlike in the case of climate change science as a motivation, then, campaigners and their audiences have different relations to expertise. For campaigners, knowledge and participation are linked, but for their audiences, participation is not premised on understanding.

My analysis of the role of science suggests several contributions to the public understanding of science (PUS) literature; these contributions can be loosely grouped under the categories of "public," "understanding," and "science." The deficit, critical, and civic epistemological approaches to public understanding of science treat "the public" in quite different ways. The public, however, is not only a question of theoretical frameworks and study designs; the public is also an empirical matter that must be investigated rather than presumed. Campaigners can be seen as members of the public with regards to climate change science and lay experts or simply experts

with regards to social marketing. The public is also the audience for the campaigns. This study has shown that how campaigners frame the problem that they are trying to solve is connected to their vision of the public that they are trying to persuade. In the case of climate change campaigns, these framings and their attendant views of the public are linked to how the campaigners use natural and social science. In the next section "Making Up the Public," I discuss the constitution of the public in more depth.

There are also implications for the conceptualization of "understanding" in the PUS literature. The premise of many PUS studies - whether deficit, critical, or civic epistemology - is that increased public understanding, or increased valuing of existing public understanding, will lead to improved opportunities for public participation. This study, however, has demonstrated that knowledge and participation can be decoupled. For both campaigners and their audiences, understanding climate change science is associated with further opportunities for participation. Similarly, when campaigners use social marketing, their knowledge of this social science enhances their participation. However, as the audience for social marketing campaigns, the public is supposed to act without acquiring new knowledge or without employing their existing knowledge. For the public, then, participation is not premised on understanding. While knowledge is not necessarily linked to the *opportunity* for participation, however, it can be linked to the *form* of participation. When campaigners use climate change science, the form of action is left open. This type of campaigning is consistent with a model of public responsibility, in which the government leads and individuals take part in political activism, or with a model of

private responsibility, in which individuals take actions in their personal lives. In contrast, social marketing is strongly linked to private responsibility because it emphasizes individualized action in the domestic sphere.

Finally, there are implications for how PUS approaches the central issue of science. In Science and Technology Studies more broadly, scholars have examined not only the natural sciences but also, to a lesser extent, the human and social sciences (e.g. Foucault 1978, Rose 1988, Wagner et al. 1990, Hacking 1990, Porter 1995, Bowker and Star 1999). For public understanding of science as well, the time has come to consider whether there are similar or related considerations for social sciences as for natural sciences (Irwin 2001). Furthermore, we cannot presume that science, natural or social, is a primary matter of concern. Climate change campaigners engage with science only when it is useful for their central goals, even when their goals are fundamentally tied to a science-based issue like climate change.

Campaigns and Institutions

The second main research question asked how the type of institution, government or non-government, affects the campaigns. I examined the interactions between the government and non-government campaigns as well as comparing the two types of institutions. I was particularly concerned with how they interacted and compared regarding their uses of science, which links the second research question to the first.

Government and non-government groups converge and diverge in the areas of policy (including lobbying), legitimacy, and identity. Non-government groups diverge with governments over policy issues such as the Kyoto Protocol, energy production and use, and emissions reductions. Non-government groups also use numbers to lobby governments for policy changes. However, government and non-government groups converge in their uses of science and in the predominance of technologies of quantification; they also have in common the personal, practical, and measurable tasks that they ask the public to undertake. In seeking legitimacy, government and non-government groups may seek independence from one another, such as through withdrawing or rejecting funding. At the same time, government and non-government groups cite one another to enhance their moral or scientific authority. Finally, they converge and diverge in the realm of identity. The more highly integrated were the government and non-government organizations, the more they asserted a distinguishing identity. As well, the more the campaigns focus on individual, personal actions for the public, the more they asserted a broadening identity.

Convergence and divergence co-exist for two reasons. First, on some occasions, different elements of government or non-government offices could act in quite opposite ways towards other organizations. The categories of "state" and "movement," then, can obscure the institutional diversity within both kinds of organizations. The social movement literature's focus on institutionalization does not sufficiently grasp this complexity. Second, government and non-government groups speak to a variety of audiences. For example, when operating under a model of public

responsibility, governments were the main audience for non-government organizations, and thus their relationship tended towards divergence. In contrast, when promoting private responsibility, the primary audience for both government and non-government groups was individuals, which became an area of convergence. In the social movements literature, the concept of framing provides a useful way of understanding the relationship between activists and their audiences or potential constituents. However, the concept of audience must also be taken into account with regards to the relationship between government and non-government groups. Finally, with the exception of the studies at the intersection of Science and Technology Studies and social movements (e.g. Brown 1992, 1997; Epstein 1995, 1996, 2003; Yearley 1996; Rabeharisoa and Callon 2002; Callon and Rabeharisoa 2003; Parthasarathy 2003), the social movements literature has been insufficiently attentive to the role of knowledge. The case of climate change campaigns demonstrates that epistemological considerations can be strongly tied to forms of politics, as in the link between social marketing and private responsibility.

Campaigns and Nations

The third research question asked about national interactions and comparisons. In particular, how does the national policy environmental, especially Canada's ratification and Australia's rejection of the Kyoto Protocol, affect the campaigns? I

explored this question as it related to the uses of science (the first research question) and the type of institution (the second research question).

As with the government and non-government comparison, there are numerous interactions and fundamental similarities between the Canadian and Australian campaigns. Across Canada and Australia, as well as across type of institution, the many formal and informal ties mean that all the campaigns constitute a common social world of climate change campaigning. There are also significant similarities between Canadian and Australian campaigns. First, all the campaigns use natural and social science and technologies of quantification as part of their campaigns. The type of institution is also a significant factor that cuts across national differences; in other words, at times the government and non-government campaigns have more in common with each other than with their national compatriots in different institutions.

However, there were important differences between Canadian and Australian campaigns in the areas of legitimacy and responsibility. In part because Australia did not ratify the Kyoto Protocol, the Australian campaigns were more concerned with their legitimacy. The Australian non-government campaign GreenHome also had the additional problem of legitimacy vis-à-vis the managers of the Australian Conservation Foundation. These concerns for legitimacy played a role in how the Australian campaigns used science and numbers, and in how the government and non-government campaigns related to one another. In particular, to enhance their legitimacy, the Australian campaigns trusted in social marketing and in measuring abatement in order to approach campaigning in a more "rigorous" fashion. In contrast,

the Canadian campaigns were less likely to adhere to the principles of social marketing and measured only participation numbers, not abatement. In the context of Canada's ratification of Kyoto, at times the Canadian campaigns could trust in, or at least hope for, a national commitment to improving Canada's environmental performance. Furthermore, because campaigners believed that Canada ratified Kyoto in part to appear to be a good international citizen, this supported the model of public responsibility.

These results challenge certain commonplaces about the role of international regimes. One might expect that the outcome of Canada ratifying Kyoto would be stronger action on climate change than in Australia, but this was not the case. Instead, the effects were more subtle and complex, influencing campaigners' work in areas of science, numbers, and responsibility. There are also implications for Sheila Jasanoff's concept of civic epistemologies (2005b). Jasanoff argued that nations have collective knowledge-ways: "institutionalized practices by which members of a given society test and deploy knowledge claims used as a basis for making collective choices" (2005b, p.255). This is in part borne out in this case because there were characteristic relationships between knowledge and politics in each country. However, these national effects cannot be separated from the strong role played by the type of institution, nor from the formal and informal ties that constitute a transnational social world. In other words, in the case of climate change campaigns, civic epistemologies are both local and global, in addition to being national.

Making Up the Public

One of the major themes that I have examined in this study is the constitution of the public. In this section, I review my analysis of the public as campaigners and their audiences. I explore the concept of the public from empirical, theoretical, and policy perspectives.

Campaigners as the Public

As we have seen, campaigners can be seen as "the public" with regards to climate change science. They are not responsible for creating this science, nor are they particularly engaged with how it is created. In that sense, they differ from other lay groups that are strongly interested in a field of natural science (Brown 1992, Epstein 1996). Furthermore, they are different from other environmentalists who have been skeptical or ambivalent towards science (Yearley 1992). Instead, climate change campaigners trust climate change science as a credible source and as an authoritative ally in their campaigns. I have also shown, though, that climate change science cannot answer campaigners' most pressing question: how can they create social change? Campaigners are thus turning instead to social marketing for their approach to campaigning. With this social science, campaigners are heavily engaged with creating this science, working intimately with academic social marketing researchers. In some

ways, they are the true "experts" of social marketing because they can acquire both theoretical social marketing knowledge and practical experience at running social marketing campaigns.

By comparing government and non-government, Canadian and Australian campaigns, I have tried to situate campaigners in their institutional and national contexts. I have shown that there are particular characteristics of each of these types of campaigns. To take an important difference, the government campaigns leaned heavily towards advocating private responsibility, while the non-government campaigns combined notions of private and public responsibility. Another significant difference was that the Australian campaigns were more preoccupied with bolstering their legitimacy, given their more difficult organizational and political circumstances, which explained in part why they relied most strongly on the systematic justifications of social marketing and the rigorous appearance of quantitative measurements of abatement. In contrast, the Canadian campaigns tended to frame their work as part of a national project to reduce emissions, in the context of Canada's ratification of the Kyoto Protocol. Despite these differences, all the campaigners undertook very similar practices and expressed very similar concerns about climate change and public participation. They also formed a common social world of climate change campaigning, cutting across institutional and national boundaries through a myriad of formal and informal ties.

Audiences as the Public

This study has investigated the concept of the public on a second level as well. Campaigners are an interesting group in their own right, but they also play an important role in the public sphere. Campaigners' primary preoccupation, in Melucci's terminology, is creating "cultural codes" (Melucci 1996). More simply, campaigners spend their time creating texts and images for public consumption. This study has thus examined "the public" as the audience for climate change campaigns. The relationship between campaigners and audiences is a complex one. Charles Briggs explored the contradictions of a similar relationship in his analysis of a public health campaign in Venezuela (2003). Briggs argued that "public discourse involves a contradiction: it must project the image of reaching an actually existing public at the same time that it creates multiple publics as it circulates" (Briggs 2003, p.287). In Chapter 1, I introduced the concept of "configuring the user" to capture something of this phenomenon. Woolgar showed how designers imagine how their users will respond to their technologies. At the same time, though, designers are creating ("configuring") the conditions under which people will be able to use the technologies. Woolgar's approach has the advantage of taking into account the materiality of such interactions, whereas Briggs focusses more on the discursive realm. Nevertheless, both are theorizing a similar type of relationship as we have seen between campaigners and audiences. For his analysis, Briggs relies on previous theoretical work by Warner (2002). Briggs explains,

> Warner reveals how the production of public discourse revolves around a number of fundamental contradictions. To become public, a discourse

> must address a public as a collection of "already existing real persons" (2002:82) with some known, specifiable commonalities, and its success depends on the interpellation of the discourse by persons who recognize themselves not simply as individual receivers but as members of a collectivity that is addressed by the discourse. Because this public is projected as being known in advance, the problem for the discourse producer can be construed as "getting people's attention," imparting knowledge to them, and persuading them to change their attitudes and behavior. Nevertheless, public discourses are, in Warner's terms, self-creating and self-organizing—the public is actually created through the circulation of discourse as people hear, see, or read it and then engage it in some sort of way. (Briggs 2003, p.291)

As Warner and Briggs suggest, campaigners envision their work as one of discovering who their audiences are and developing effective strategies for getting their attention and persuading them to take action (with or without passing on "knowledge"). Among campaigners, there are differences in whether they see their audience in terms of a mass of individuals or as made up of particular groups. There are also differences as to whether they see their audience as essentially similar in nature to themselves or essentially different. Quite often, the same campaigners will simultaneously hold contradictory views on these questions, which is not a problem for the practical work of designing a multi-faceted campaign.

However, campaigners are not only trying to understand and influence the public, they are also creating it. In Briggs' words, "audiences for public discourse are produced by the circulation and reception of the discourse and the material underpinnings that shape these practices" (2003, p.289). Thus, for example, if campaigners frame the problem as teaching the public about climate change science, the public is constructed as capable of knowledge and rational action. In contrast, if campaigners frame the problem as changing behaviours, the public is constructed as

situated in particular local concerns and values. By promoting private or public responsibility, campaigners create the conditions under which the public can participate. Furthermore, campaigners create the infrastructure by which the public can speak back to them about their experiences of participation. Whether campaigners measure numbers of participants or abatement, for instance, influences their view of public response to their messages, though both approaches are quite narrowly quantitative. Thus, although this study has been conducted entirely through the lens of campaigners, we can still see that this process is not unidirectional. The "public" can communicate back, if only through resistance to its categorizations and the form that its participation is supposed to take.

The concept of the public matters because the "public" is not only the audience for campaigners, it is also a powerful category for understanding our democracies. Concepts like the public sphere, public discourse, public debate, and even public understanding of science are central to our understanding of political and social life. Other scholars have focussed more directly on theorizing the public than I have done here, and with much greater insights than I am even attempting to provide (e.g. Habermas 1984, Dewey 1927). My goals, though, have been somewhat different from theirs. I have explored the constitution of the public as an empirical and practical matter, in terms of practices, objects, institutions, and discourses. I have tried to show that the public is not a free-floating entity found naturally or inevitably in society. Specific groups of people work to bring the public into being. I have argued that, if

only in a small way, the public is an outcome of campaigners bringing climate change down to earth.

The Public and Policy

What are the political and policy implications? I have argued that campaigners are trying to change the world and that they are trying to do so in large part by changing people. As I have shown, this work is premised on fundamental beliefs about who people are and what makes them behave the ways that they do. Campaigners rely on formal and informal sources of knowledge to understand these questions. For formal sources of knowledge, campaigners have turned mainly to social marketing, but this is only one academic perspective on these questions. Although other theoretical schools are less directly focussed on the practices of campaigning, there are perhaps deeper insights to be had from a broader social scientific perspective. What practical applications of, say, sociological theory might there be for climate change campaigns? I do not suggest that there are any simple answers to this question, but I would argue that the question of who people are must be constantly revisited. Second, in terms of informal knowledge, campaigners might keep in mind their own role in constituting the object of their interventions. I have argued that the public is in part an outcome of campaign design. Campaigners are not the only ones who make up the public in this way: all of us do so, especially those who take the category of the public as the object of their interventions, such as campaigners

and social scientists. Still, with this in mind, we can consider the consequences of our creations with more care.

Scientific Citizenship

Why should anyone care if the public understands science? Science and technology play ever-increasing roles in contemporary society. As such, one of the reasons that the public must understand science is so that people can fulfill their rights and obligations as citizens. To capture this idea, a new term has emerged in the past decade or so: the "scientific citizen" (Michael 1998, Irwin 2001, Irwin and Michael 2003, Elam and Bertilsson 2003, Leach et al. 2005). The concept of scientific citizen has clear relevance to the case of climate change campaigning. At the same time, what is a scientific citizen, other than a person who engages with both science and politics? According to Elam and Bertilsson, "scientific citizens participate in the task of deciding what constitute important opportunities and acceptable risks in the carrying out of science-based new combinations" (2003, p. 246). Within this definition, though, there are important variations in how citizens may participate and how they should make decisions. Elam and Bertilsson discuss three alternative versions of scientific citizenship, within the context of three models of democracy: advanced consumer, deliberative, and radical/pluralist (2003). Historically, the only scientific citizens were the scientists themselves. In this "Enlightenment" model, "it is

only natural that communication between science and society is all one-way: that science speaks to society without society ever being given the opportunity to talk back to science" (Elam and Bertilsson 2003, p.238). Today, the "deficit model" of public understanding of science is the updated version of the Enlightenment view. Science should tell society what it needs to know so that the public can develop its preference about science-based issues. Elam and Bertilsson call this model of democracy "advanced consumer" because understanding science allows the "opportunity to discover and cultivate one's own opinions and preferences" (2003, p. 240). Second, in the deliberative model, science-based issues are rationally deliberated upon. The goal is to "[construct] new spaces through deliberative procedures where science and technology issues can be given the public airing they deserve" (p. 241). Participants can then come to a consensus on the best course of action. New laboratories of democracy such as consensus conferences or citizen juries are in this model. Finally, in the radical/pluralist mode, "room is created for legitimate forms of public confrontation with science and technology outside of deliberative contexts and a new vision of the virtuous scientific citizen. … The objective is not to eliminate passions, nor limit them to the private sphere for the sake of rational argument, but to mobilize them, and welcome their intervention, when put to good democratic effect" (p. 245). This model recognizes and works with the realities of power and domination in society.

Do climate change campaigns represent cases of scientific citizenship in action? In some ways, they do. As we have seen, campaigners engage with science as

part of their experience of citizenship. Campaigners are scientific citizens in all three of Elam and Bertilsson's senses above. In keeping with the "advanced consumer" model, campaigners take what climate change science gives them in order to bring about their political preference for a more environmentally-sustainable world. Social marketing theory and practice provide a forum for campaigners to rationally deliberate on how to bring about social change. We can also see elements of the radical/pluralist mode at work, although perhaps to a lesser extent. Campaigners are certainly very passionate about their work, and some of them offer fairly radical critiques of the status quo, such as questioning the need for economic growth. In addition, we can see elements of the scientific citizen in the campaigners' relationship with their audiences. The climate change science approach to campaigning is an "enlightenment" approach, though the goal is not for the public to cultivate its preferences but rather to take the actions recommended by campaigners. The advanced consumer model is present in the numbers campaigners provide for the public to use. When individuals calculate their emissions and develop a plan to reduce them, they are also participating in a process of self-discovery and self-governance, but in accordance with the broader political goals set by campaigners. Finally, in a pluralist (though not radical) sense, social marketing tries to harness the public's pre-existing passions and values and, at times, to recognize the public as made up of distinctive groups. The concept of scientific citizenship, then, can capture some elements of the case of climate change campaigns.

This study has, however, demonstrated significant limitations of the concept of scientific citizenship. First, Elam and Bertilsson's formulation of scientific citizenship does not adequately take into account the conflation of citizen and consumer in advanced liberal societies. They called the first model of politics "advanced consumer," but this refers somewhat abstractly to picking and choosing among preferences. We also need to take the notion of consumption into account more literally, in terms of purchasing consumer products. Commentators on contemporary society have warned that consumption may be replacing citizenship as the primary mode of public participation (Reid 2004). However, climate change campaigns show that we should not take this argument too far. Purchasing a different type of light bulb can indeed be a fully realized act of citizenship, in that it involves exercising a duty towards others within the context of national political projects. Thus, while we need to take consumption into account when considering citizenship, it is not simply a case of the one replacing the other (Michael 1998). Instead, I would argue that the type of scientific citizenship that recognizes the blurring of citizen and consumer is a citizenship of the mundane. Citizenship occurs not only in the mythologized public sphere but also in everyday spaces with everyday objects and practices. In Rose's words,

> To understand the genealogy of citizenship as a socio-historical phenomenon we should lower our eyes from these grand and airy deliberations and examine also the mundane, the small-scale, the technical. Citizenship should be studied at the level of the practices, technologies and mentalities within which citizens were to be formed, not simply as the moral subjects that philosophical deliberation seeks to equip with abstract rights and freedom, but as the subjects of governmental technologies, ethicalized individuals capable of

> exercising self-mastery, discipline, foresight, reason and self-control. (Rose 1999, p.226)

Furthermore, this citizenship of the mundane is implicated not only with the large scale science of climate change, but also with the more "down to earth" social science of consumption and behaviour.

Another limitation is not on the side of the "citizenship" but on the side of "science." It is important not to presuppose the significance of science, even in such a strongly science-based issue like climate change. In this regard, we should learn from how campaigners interact with science. They ask not so much if it is true, but rather if it is useful. Campaigners show us that, despite how basic science is to a problem like climate change, their primary matters of concern are people and actions. The question is not merely whether citizenship is scientific or not, but rather what spaces for participation are available in significant issues of the day.

Policy and Action

In Chapter 7, I contrasted public and private responsibility, and the different types of actions that individuals can take, such as letter writing or light bulb changing. However, when we focus in on the new question of what people should do, we see the narrowness of both of these options. In their attack on the environmental movement, Shellenberger and Nordhaus argue that the movement has been too preoccupied with technological fixes to dream new visions for the future (2005). In this light, we can imagine a broader form of participation for both campaigners and their audiences.

Can we bring about a new world with different nature/culture arrangements? This type of visionary exercise can go beyond rational deliberation and consumption to include creative, passionate, and diverse models of how to live. Even as I write it, this kind of language seems hopelessly naïve, but perhaps it is also the only way to broaden our vision of future possibilities.

Moving into the Future

This project has opened up many avenues that could be explored in future research. First, I hope that I have showed that Canada and Australia were interesting and worthwhile choices for comparison. However, neither country is a world leader in reducing greenhouse gas emissions. In 2003, Canada's emissions were at 24% above 1990 levels (Canada 2005, p.42). In 2002, Australia's emissions were at 1.3% above 1990 levels (Department of the Environment and Heritage 2004). While this may look impressive compared to Canada's record, Australian emissions from energy use have increased on par with Canada's; Australia has improved its record mostly in the area of land clearing (Australian Conservation Foundation 2004b). It would be interesting to explore how government and non-government organizations engage the public in climate change efforts in countries that are actually making substantial reductions in greenhouse gas emissions. Do such strong efforts involve novel institutional or political relationships? What role is envisaged for public participation in cases, for

example, where governments are eliciting major emissions reductions from other sources? Are there any policy lessons for countries like Canada and Australia, or are such experiences distinctively local?

Second, this study focussed entirely on the perspective of climate change campaigners. I did explore how campaigners imagined and tried to shape their audiences, but I did not myself investigate how the campaigns were received. Future research could examine the same types of campaigns but from the opposite point of view. What prompts individuals to participate in a climate change campaign? How do they view their participation? How do they interpret campaign goals? Do they experience climate change as a science-based issue? Kersty Hobson carried out an interesting study of this type in the UK (2003). She conducted interviews in the homes and workplaces of individuals participating in a campaign called "Action at Home," in which neighbours or colleagues work through a series of environmental projects in their homes. Her study showed that it is possible to approach campaigns not only in terms of how they are created but also in terms of how they are received.

In addition to future research, I expect to see significant developments in climate change science and politics. Of course, it is usually a futile exercise to predict the future, but there are signs that climate change politics will only increase in prominence over time. In 2003, the UK government issued a *White Paper* on future energy use (Department of Trade & Industry 2003). In this document, the government committed to reducing emissions not by the 5% of the Kyoto Protocol but by 60% (by the year 2050). Even Australia's Environment Minister stated that the world must

reduce emissions by 60% within the century (Cassidy 2002). As we have seen, efforts to reduce emissions are fundamentally about relationships between individuals and their social and political institutions. If indeed we all begin to make such substantial changes in how we produce and consume energy, we can also expect nothing less than societal transformation.

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