



# degrees<sup>o</sup>f possibility

igniting social knowledge around climate change

## Workshop Report

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With contributions from

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Edited by  
Richard Nottage



NEW ZEALAND  
CLIMATE CHANGE CENTRE

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June 2011

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# About the New Zealand Climate Change Centre



## Member organisations

The New Zealand Climate Change Centre (NZCCC) is a joint initiative by New Zealand Crown Research Institutes, University of Canterbury and Victoria University of Wellington.

Our vision is to enhance the capacity of New Zealand, both domestically and in partnership with other countries, to anticipate, mitigate, and adapt to climate change. We do this by facilitating collaboration on climate change-related issues. Our member organisations contain climate experts with diverse backgrounds and expertise in physical, biological and social research, consulting, and education.

The NZCCC was launched in 2008, in response to a perceived need for collaboration across providers of science-related climate research and services, and for mechanisms to facilitate interactions with end-users. It is funded through modest annual contributions from the member organisations.

Activities to date have included conferences, workshops, roundtable discussions, publications, coordinated submissions on climate matters, and the development a website to provide information about our members and their expertise.

The *Degrees of Possibility* workshop and this subsequent report would not have been possible without the contributions of the following organisations which form the NZCCC:

- AgResearch (NZAGRC)
- ESR
- GNS Science
- Industrial Research Ltd
- Landcare Research
- NIWA
- Plant & Food Research
- Scion
- University of Canterbury
- Victoria University of Wellington (NZCCRI)

Membership of the NZCCC is for organisations that undertake substantive research on issues relating to climate change, with staff who publish such work in the mainstream peer-reviewed scientific literature. If you would like to see your organisation become part of the NZCCC, please get in touch with us.

*David Wratt*

**Dr David Wratt**  
Director, NZCCC

[www.nzclimatechangecentre.org](http://www.nzclimatechangecentre.org)



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Finally, I thank the speakers and all those who attended the *Degrees of Possibility* workshop in Wellington in December 2010. Together, this group of scientists, policy makers, and community interests generated the information, ideas and energy that provided the valuable material for this report.

Richard Nottage

June 2011

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E āku nui āku rahi, āku rangatira huri noa i te ao  
whānui tēnā rā koutou katoa.

Me pēhea te tuku atu i ngā kupu whakamihi ki a koutou  
i tae ā tinana mai ki tō mātou nei hui - New Zealand  
Climate Change Centre, i whakatūria e mātou i Te  
Whanganui-ā-Tara i te ono o ngā rā o Hakihea 2010.

Te āhua nei he maha ngā hua kua puta mai i tēnei o ngā  
wānanga hei whakaarotanga mo tātou katoa. Nō mātou  
kē te hōnore, te waimarie hoki i tā koutou haeretanga  
mai ki te tautoko, ki te whakanui i te kaupapa otiia ki te  
whakaara ake i ngā rautaki hōu hei whakaheke iho i te  
tūpono o te paheko āhuarangi ka pā mai ki tēnei hāpori,  
ki tera hāpori huri noa, huri noa.

Nō reira e ngā uru kāhika, e ngā whakamireirei o te  
marae, kei te mihi mīharo ake ki a koutou.

# Executive summary

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Climate change is one of the most significant issues facing the world today. It is clear that understanding the complex and interrelated nature of climates and societies is critical, and that the social sciences have an important role in addressing this challenge. This has generated an important new question: "how can social knowledge contribute to our understandings of and responses to the phenomenon of human-induced climate change?"

On 6 December 2010 a New Zealand workshop, *Degrees of Possibility: Igniting Social Knowledge around Climate Change*, sought to examine this question. This report provides a background to the workshop, summaries of the keynote papers and a record of the ideas developed in the discussion groups and observations of the day. Conclusions are drawn about the opportunities and challenges identified through this process, and recommendations for future action are made. This document provides a rich source of information about research issues, questions and methods as a platform for future cross-organisational planning of climate change-related social science.

The aim of the workshop was: *To facilitate dialogue within the social science community, and between social scientists and biophysical scientists, around climate change.* The five associated goals were to:

1. review existing social research on climate change, and related research areas, to identify themes and research gaps
2. consider how relationships between social scientists and biophysical scientists (including climate scientists) currently function, and how they can be developed
3. explore how relationships within and outside the social sciences can be developed in order to identify opportunities for future collaboration
4. identify opportunities for New Zealand to provide new inputs into international climate change debates based on insights from the workshop
5. develop key social science research questions and future research themes

The workshop was designed from the premise that 'social knowledge' includes both formal academic knowledge and knowledge held by those in other sectors, including government, industry and the community. It successfully brought together interested individuals and groups from a range of organisations and institutions, including those who might commission, conduct, co-produce, implement or respond to future social research around climate change. In doing so it helped to facilitate dialogue both within and across the social and biophysical sciences, and the research and policy communities. This process was critical as our belief is that any programme of climate-related social science should itself reflect the principles of 'co-production of knowledge' by effectively involving expertise from a range of disciplines and sectors in society. This report, therefore, represents the beginnings of a conversation about what future research is needed. The next steps are to refine this into a well targeted social science research agenda which is embedded in wider climate change research programme and policy agendas.

Social science can contribute to understanding climate change in the following important ways.

- Improving social understanding of climates and the relationship between climate and societies
- Providing new perspectives and potential breakthroughs in the debates around climate change and supporting cohesive social discussion and constructive policy development
- Applying and developing social science knowledge and tools to create new insights and pathways for institutional transformation, organisational learning and social change
- Providing evidence to support decision-makers in institutions and organisations.

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The authors, social scientists from three Crown Research Institutes (CRIs), have prepared eight recommendations for advancing social knowledge around climate change and envisage these will provide the basis for planning and discussion with interested parties. Our recommendations are these.

1. Initiate a process to develop and implement a New Zealand social science research agenda on climate change, which would:
  - a. analyse and interpret the research ideas and suggestions raised at this workshop, and translate them into a refined and targeted set of social science research questions
  - b. summarise the information and knowledge needs of research end-users
  - c. correlate a. and b. above to establish an overarching social research strategy, including the top priority research issues, questions, and approaches.
2. Identify innovative research methods, including mechanisms to effectively transfer social science knowledge to end-users in government, industry and the community.
3. Establish an inventory of current and planned social research in New Zealand related to climate change, including research on adaptation, mitigation, resilience and sustainable development.
4. Identify the current capacity (i.e., expertise, interest and skills) in the New Zealand social science research community in relation to climate change and current areas of research strength and weakness.
5. Identify where social science can be embedded and integrated with biophysical science in existing and planned climate change research agendas and programmes in the government, university, CRI and industry sectors.

6. Establish approaches and institutional arrangements to stimulate further transdisciplinary research in the government, university, CRI and industry sectors.

7. Identify where and how New Zealand social science expertise can contribute to climate-related research in the Asia Pacific region and the wider international context, including forthcoming Intergovernmental Panel on Climate Change (IPCC) programmes (e.g., the Fifth Assessment Report).

8. Establish mechanisms to ensure that New Zealand social science research on climate change is appropriately valued, conducted and evaluated by those with relevant expertise.

To begin the discussion we have highlighted three research themes that could inform the development of a New Zealand social science research agenda for climate change (see Table 1). These themes were developed through a detailed thematic analysis of all the ideas raised and comments made at the workshop. Under a series of summary headings we generated a full list of all research questions proposed by participants and elaborated by the authors (see Table 4, page 41). A succinct version of these suggested questions is presented in Table 2. In addition, given the current focus on social science in international climate change research forums we have included the social science-related entry points identified in the IPCC Fifth Assessment Report process that Dr Andy Reisinger presented at the workshop (see Appendix, Table 1). This is indicative of how important social science has become in international climate change research, and provides a useful point of comparison with the ideas that emerged at this workshop.

Providing summarised workshop discussions, in-depth analytical statements from leading social scientists and a series of recommendations for future steps, this report offers a strong platform for future dialogue in New Zealand and from New Zealand.

**Table 1.** Key research themes to be considered in the development of a New Zealand social science research agenda for climate change.

| Theme   | Comment  | Impact   |
|---|--|--|
| <b>1. General framework for inquiry</b>       | <p>How are we making sense of and responding to the phenomena of global change, including human-induced climate change?</p> <p>Any research strategy first needs to make visible the general framing of the problem, and the process by which frames are established.</p>  | <ul style="list-style-type: none"> <li>Collectively develop frames of 'the human', 'the social', and 'climates' that make people more aware of, and more reflective about, intervening in and changing the social world.</li> <li>Embed more diverse imaginaries of futures, economies, ecologies and change into media, government and research discourses.</li> </ul>  |
| <b>2. Changing practices in everyday life</b> | <p>How well do we understand the specificities of resource-intensive everyday practices in New Zealand? How can resilience and adaptation be introduced without undermining our commitments to quality of life and social cohesion?</p> <p>The research strategy should invest in numerous and diverse policy-research-practitioner experiments to support future resilience and transformation.</p>   | <ul style="list-style-type: none"> <li>Identify the processes involved in the circulation of resource intensive patterns of everyday life in New Zealand and how these transform.</li> <li>Examine the formation of specific practices and the systems through which associated practices emerge and disappear.</li> <li>Create a better understanding of the emergent characteristics of resilience practices in New Zealand.</li> <li>Identify social change mechanisms to inform and transform social practices.</li> </ul> |
| <b>3. Enhancing institutional capacity</b>    | <p>How can we enhance capacities for understanding and addressing climate-related practices across organisations and sectors?</p> <p>We need to create and resource opportunities for social innovation, linking pragmatic and intellectual endeavours. This includes designing initiatives and research projects which allow for the co-production of scientific and social knowledge across government and NGO agencies and researchers.</p> | <ul style="list-style-type: none"> <li>Foster networks across CRI and university researchers working on climate change.</li> <li>Foster stronger science and society policy networks.</li> <li>Fund initiatives that link community-based research projects to CRI and university researchers.</li> <li>Fund research that goes beyond examining behaviour change to address changing social relations.</li> </ul>   |

**Table 2.** A summary of key research areas and illustrative questions that emerged during the workshop. The full set of questions is presented in Table 4, page 41.

| <b>Research area</b>   | <b>Detailed research questions – some examples</b>  |
|--|---|
| <b>Social understandings of climate, of climate change research and future scenarios</b>             | <ul style="list-style-type: none"> <li>• How is the scale and urgency of climate change understood?</li> <li>• What are the socio-economic drivers of greenhouse gas emissions?</li> </ul>  |
| <b>Implications of biophysical climate system changes on New Zealand social and economic systems</b> | <ul style="list-style-type: none"> <li>• What are farmers' perceptions, choices and strategies?</li> <li>• How are businesses and industries responding to climate change?</li> <li>• How will urban systems be affected and how can they respond and adapt?</li> </ul>   |
| <b>Second order impacts and interactions between systems</b>   | <ul style="list-style-type: none"> <li>• Will migration end up being the most serious impact on New Zealand?</li> <li>• How can the multiple facets of issues (e.g., health, environmental, social) be explored and/or defined?</li> </ul>  |
| <b>Understandings of, and approaches to, mitigation, adaptation and resilience</b>                   | <ul style="list-style-type: none"> <li>• What contributes to or impedes social resilience?</li> <li>• What does 'adaptation' mean and how does it occur?</li> <li>• What cases are there of successful sustainable communities?</li> <li>• What institutional and psycho-social processes are involved?</li> </ul>  |
| <b>Social equity and justice (e.g., Māori, vulnerable communities)</b>                               | <ul style="list-style-type: none"> <li>• What will be the particular impacts on the poor, for women and children and for disabled, Māori and Pacific Island communities?</li> </ul>   |
| <b>New Zealand socio-political relations in a regional context</b>                                   | <ul style="list-style-type: none"> <li>• How will climate change affect relationships with Australia and the Pacific?</li> </ul>  |
| <b>Processes of social change</b>  | <ul style="list-style-type: none"> <li>• What understandings do we have of generic processes of social change? How can this knowledge be applied to facilitate social change in response to future climates?</li> <li>• How can rapid social change be achieved, to respond to the latest climate scenarios?</li> </ul>   |
| <b>Empowering transformation through communication and stakeholder engagement</b>                    | <ul style="list-style-type: none"> <li>• What is the best way of communicating climate risks?</li> <li>• How can we shift values, attitudes and behaviour?</li> <li>• Is 'behaviour change' the only focus? What are the socio-technical conditions that influence this? What forms of structural change are needed?</li> <li>• What new forms of public engagement are needed?</li> <li>• How can we resolve conflicts between different interests and risk perceptions?</li> </ul>  |
| <b>Governance processes, including risk assessment, risk modelling and decision making</b>           | <ul style="list-style-type: none"> <li>• What forms of governance, policy and decision-making are needed?</li> <li>• What are practical and relevant solutions for local decision-makers?</li> <li>• What are the most effective/acceptable policy mechanisms and interventions?</li> <li>• How can policy deliberation and collaboration be enhanced?</li> </ul>   |
| <b>Knowledge production</b>  | <ul style="list-style-type: none"> <li>• How can we achieve action when climate models may never be complete or fully accurate? How is 'prediction' understood and practised?</li> <li>• What new forms of technology, and technology transfer, are needed?</li> <li>• How do we foster genuine collaboration amongst social science organisations, policy makers, private corporations and civil society?</li> <li>• How can we incorporate traditional knowledge into strategies for mitigating the effects of climate change?</li> </ul>     |
| <b>Supporting economic transformation</b>  | <ul style="list-style-type: none"> <li>• How are markets changing and how should New Zealand position investment, policy etc. to take advantage of these changes?</li> <li>• How can critical pathways, motivation, for voluntary change and alternative approaches (e.g., regulation) to respond to climate change be identified and invested in?</li> </ul>   |
| <b>The 'birds eye view' – socio-political framings and reframings of climate change</b>              | <ul style="list-style-type: none"> <li>• How do people experience 'climate change' in everyday life?</li> <li>• How is climate change approached through indigenous knowledge?</li> <li>• What does the crisis over climate change indicate in terms of larger scale dynamics around industrialisation, globalisation, and sustainability?</li> <li>• Is adaptation about maintaining 'business as usual', or a different future?</li> <li>• What new partnerships between governments, citizens, industry and science are possible?</li> </ul> |

# Foreword

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## Prof. Richard Le Heron FRSNZ

Vice President (Social Sciences and Humanities),  
Royal Society of New Zealand

Professor of Geography, School of Environment,  
University of Auckland

### **Future Pathways – the Co-production of Climate Knowledge**

When the New Zealand Social Science Delegation to the World Social Science Forum in 2009 reported on the opportunities for social science to contribute to New Zealand, it identified the co-production of knowledge as a key strategic target. The report stated 'Internationally there is a strong trend for the social sciences to be integrated into the wider science system, with social scientists fully participating in all priority-investment research programmes. New Zealand is at an early stage of this trend' (MoRST 2010). *Degrees of Possibility* signals significant leadership by New Zealand social scientists and biophysical scientists associated with the New Zealand Climate Change Centre in co-producing knowledge alongside and with industries, communities, government and non-government agencies.

The last quarter century has been a time when humans have been able to name and talk about two planetary trajectories – the first relating to the variability inherent in Earth's biophysical dynamics on which we all depend, and the second relating to the unevenness of economic and institutional experiences in everyday life which we all help make. Almost ironically, this parallel situation has arisen from the relatively independent work of biophysical scientists and social scientists who for the most part have only just recently begun to appreciate the interdisciplinary knowledge contributions, specifically for global 'grand challenges'.

This new level of planetary awareness has given unprecedented opportunities to ask questions from every place and every position in these co-existing trajectories. This questioning is drawing on the experiences of all life on the planet. It is designed to

shape our relationships with each other as people on earth and as people in relationships with the flora, fauna and ecosystems of nature.

Most crucially this is a time of opportunity. It is a chance for us in New Zealand to consciously and knowingly frame and think about ideas and actions relating to climate – and to then place New Zealand's knowledge production efforts in this regard into international debates.

When the Royal Society of New Zealand was approached to be a partner in the *Degrees of Possibility* workshop, there was excitement about this meeting, as it was completely consistent with the aspirations of the Society's new Academy of four (science, social science, technology and humanities) interdependent pillars of knowledge production. The workshop was seen as a way to open up discussion about, and make much bigger, the platter of conceptual resources we use when discussing climate questions. This framing helped with organising the workshop. It gave scope to introduce social science knowledge systems, encourage cross-disciplinary discussion and gave room for different questions and different styles of questioning. The intention was to give a sense of *other futures*, by asking *new* questions, and asking *old* questions, differently.

Putting social science knowledge systems into conversation with those of other scientists and practitioners around the theme of possibilities was, I think, immensely productive of how we understand moving forward on climate variability and climate events *in New Zealand* and *from New Zealand*.

At the workshop we were collectively introduced to a wealth of social knowledge insights that will allow the wider academy in New Zealand to develop deeper understandings.

The keynote speakers provided rich guidance and resources for debate and discussion. They made issues more visible because they were being scrutinised by bringing social scientists and biophysical scientists into conversation about questions of mutual interest. They were particularly

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effective at making visible lines of difference in understanding and foreshadowing debate and discussion that was to follow. Some new lines of questioning were prompted by the keynote speakers.

- How might social scientists and biophysical scientists include cultural memory and intergenerational thinking as they build knowledge about climate questions?
- How do we develop our abilities to create knowledge of both how policy choices or options are selected and knowledge on how to execute choices better?
- How might we manage the development of co-production capabilities amongst biophysical and social scientists, when the realities they focus on and the practices they use to produce knowledge often differ a great deal?
- How might we communicate the more complex and potentially more helpful understandings from the exchanges amongst biophysical and social scientists?

What were some of the conclusions that emerged from the more widely informed discussion of the workshop? I would identify at least five.

**Rename the object** – call it *climate variability* and *climate events*. Why? Because what is at stake is more than just modelling and measurement. What do I mean? At the level at which climate variability and events impact, the local, no-one cares much about measurements or models. The immediate concerns are about coping, caring and confronting emerging challenges. This is especially so for women who are already bearing the impacts of climate variability and events as these uncertainties play out in different parts of the world. Climate science has to focus on *collectively experimenting* in the re-design of its knowledge production institutions and practices by asking new questions that admit those who do the responding to climate variability and events. This is not to discard the insights of modelling and measurement, it is to

re-position these knowledge practices and open up different ways of using such knowledge.

**Be very careful over terms** – to illustrate, should ‘vulnerability’ or ‘resilience’ be used, or should both? One, ‘vulnerability’, is designed to highlight different starting points, different locales, differing aspirations, and so on. The other term, ‘resilience’, is designed to hold the present system together or reproduce it. The key word here is *system*, unstated but in fact, the existing system with its injustices and in-built pressures for converting nature into resources that are then over-consumed. This requires building new social capacities and capabilities out of the context of current systems for organised production and consumption.

**Name different socio-environmental futures** – build scenarios while recognising that this will involve conflict, difference and struggle over the naming and the content of the imagined trajectories. The idea of striving for consensus may actually screen out productive tensions that identify directions towards the new, and not directions back to existing ways of doing things. Having a different conception of what is to be worked on, and, what might form appropriate categories, changes what are possible futures.

**Understanding of institutions** – by this I mean the rules, norms, conventions, habits, and procedures that structure possible courses of action. This is where the social scientists’ concern with framing is so crucial. Institutions or stabilised ways of doing things create moulds or frameworks that allow, or do not allow, different understandings to fit. They legitimate some ways of behaving at the expense of others. Enacting different futures out of scenarios and other strategising processes will need new institutions. Putting new institutions into the space between the twin trajectories of the biophysical and socio-cultural and political-economic is key, and the most important of these is the state.

**Facing both immediate and long-term responsibilities** – this is about sorting out the nature of responsibilities, allocation of

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responsibilities, particularly accountability – for not having acted, as well as having acted.

A strong institutional framework allows discussions about these sorts of issues to be undertaken with reasonable prospects that monitoring and evaluation of institutional performance occur.

Writing in *Theory, Culture & Society* before the Copenhagen conference in 2009, Brian Wynne (2010, p. 291) wrote ‘we are nowhere remotely close to achieving the globally-diffused, diverse and distributed social capacities’ needed to break out of the imprisonment of the current climate change framings.

I believe that the *Degrees of Possibility: Igniting Social Knowledge around Climate Change* workshop, and now this accompanying workshop report, have well and truly begun that process in New Zealand. We know better our current range of practices and their limits, we have the capability to set agenda, and move forward, we should be able to articulate very distinctive New Zealand framings, and we should be able to put these co-produced understandings into international circulation. These achievements are worth aspiring to, and prioritising.

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“ The social sciences bring greater clarity to our understanding of how human populations interact with one another, and, by extension, with the environment. The ideas and information they generate can therefore make a precious contribution to the formulation of effective policies to shape our world for the greater good. ”

Irina Bokova

Director-General of UNESCO

*Foreword to World Social Science Report UNESCO, 2010, p iii.*

# Chapter 1. Introduction

On 6 December 2010 over a hundred people gathered in Wellington, New Zealand, to address one of the most important issues for science, social science and policy currently facing New Zealand: “how can social knowledge contribute to our understandings of and responses to the phenomenon of human-induced climate change?”

Climate change discussions are increasingly part of peoples’ everyday lives. The development of the field of international climate science and the establishment of the Intergovernmental Panel on Climate Change (IPCC) are perhaps the most significant expressions of scientific knowledge in contemporary society. While national and regional environmental issues have been a concern for nation states for some decades, the problem of human-induced climate change has bound citizens and governments together at an international level, reshaping our human consciousness. We now more fully know ourselves as part of a global human-ecological system. What happens in one part affects the whole. Through our technical knowledge and actions as a modern society we have created changes in the biosphere that now threaten not only our own future prospects but potentially the functioning and viability of global ecosystems at large.

Through the knowledge of biophysical scientists, the warning to society about the risks of dangerous greenhouse gas levels has been made. And through our knowledge and social action, we have the power to intervene in our own trajectory and change those risks. There is still the possibility to divert out of destructive social, economic, and technological pathways, and to mitigate, adapt and re-create societies, economies and futures. Igniting these changes depends on negotiating through the many ways we make sense of the climate change problem and what we can do about it. This is entirely a social situation – and we need the very best of our social knowledge to respond to it.

There is a general acceptance that new ways of producing knowledge are required to guide a transition from our present resource-intensive and

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high-carbon lifestyles to more sustainable and low-carbon ways of living. Social scientists argue further that we need to think harder about what worlds we want to create, what social institutions might be required to frame and secure low-carbon worlds, and how we could better understand and influence the different social processes at work in the world. This is the work of social knowledge – and the social science research that generates and/or configures it. ‘Social knowledge’ includes the expert knowledge of social scientists on how societies work; but (consistent with the principles of transdisciplinary research) it also includes the knowledge that can be applied to an issue from beyond specific disciplines, including the expertise in government, industry and the community and other knowledge frameworks such as indigenous knowledge. These different knowledges need to be brought to bear on climate change.

Following on from its successful *Climate Change Adaptation: Managing the Unavoidable* conference in May 2009, the New Zealand Climate Change Centre (NZCCC) identified the broad topic of ‘climate change and social science’ as being an important theme for its next major event. After an initial scoping exercise by Brendan Doody (GNS Science) it was decided to bring together researchers from the social and biophysical sciences and end-users interested in this field – hence the *Degrees of Possibility: Igniting Social Knowledge around Climate Change* workshop<sup>1</sup> held on 6 December 2010.

The New Zealand social science community is located in diverse sites across Crown Research Institutes (CRIs), universities, private sector, government and non-government agencies. Accordingly, an effort was made from the outset to involve a number of organisations as partners. This provided valuable expertise, experience and knowledge and enabled participation from across a range of disciplines and sectors. After an initial scoping meeting in April 2010, the workshop organising committee was set up comprising Dr Karen Cronin (ESR), Richard Nottage (NZCCC), Brendan Doody (GNS Science), Alison Greenaway (Manaaki Whenua Landcare Research), and Dr David

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- New Zealand Agricultural Greenhouse Gas Research Centre
- New Zealand National Commission for UNESCO
- Royal Society of New Zealand – Social Science Advisory Panel
- Building Research Capability in the Social Sciences (BRCSS) Network

The workshop was designed to bring together stakeholders from different backgrounds who could contribute diverse information and expertise. As a form of participatory action research, it was recognised that ‘social knowledge’ includes both formal academic knowledge and knowledge held by those in government, industry and the community. Through this process we sought to open up the question of ‘how we develop social research in relation to climate change’ to a wide range of participants, including those who might commission, conduct, co-produce, implement or respond to such research.

Through the workshop, the NZCCC brought together for the first time senior researchers from the social and biophysical sciences, along with policy, industry and community experts, to establish the key themes for a New Zealand research agenda for social science in relation to climate change. Such was the interest in the workshop that registrations eventually had to be capped at 115 participants. Participants generated a lively and positive discussion and illustrated the value of cross-sector and cross-disciplinary dialogue.

### Workshop aims and goals

The aim of the workshop was: *To facilitate dialogue within the social science community, and between social scientists and biophysical scientists, around climate change.* The goals were to:

<sup>1</sup> Workshop website: [www.nzclimatechangecentre.org/event/dop](http://www.nzclimatechangecentre.org/event/dop)

1. review existing social research on climate change, and related research areas, to identify themes and research gaps
2. consider how relationships between social scientists and biophysical scientists (including climate scientists) currently function, and how they can be developed
3. explore how relationships within and outside the social sciences can be developed in order to identify opportunities for future collaboration
4. identify opportunities for New Zealand to provide new inputs into international climate change debates based on insights from the workshop
5. develop key social science research questions and future research themes

### Report structure

This report outlines the background to the *Degrees of Possibility* workshop, presents summaries of the keynote papers, and records the ideas developed in the discussion groups and observations on the day. It has been written as both a summary of the proceedings and as a briefing document for decision-makers in government and science organisations to assist in strengthening the New Zealand social science contribution to social knowledge around climate change.

The workshop programme included keynote presentations from Prof. Sir Peter Gluckman, the Prime Minister's Chief Science Advisor; Dr Maria Bargh, Victoria University of Wellington; and Dr Andy Reisinger, New Zealand Agricultural Greenhouse Gas Research Centre. The international keynote speaker was Prof. Elizabeth Shove, Department of Sociology, Lancaster University, who joined the meeting by video-link from the United Kingdom. These presentations are summarised in Chapter 2 of this report.

Participants were then invited to join in small group discussions on the following questions.

1. What have you read or heard recently which stimulated your thinking in regards to climate change and society?
2. What insights can social science offer to provide greater understanding of climate change issues and climate action?
3. Taking into account what we have just heard about the status of climate science internationally, how do you see New Zealand social science contributing to future research at the local, regional and international scale?
4. If you had the opportunity to develop a New Zealand social science research agenda for climate change, what would you list as the top three research questions that need to be addressed?
5. How should the social science research agenda for climate change be progressed?

Responses to these questions have been written up, with a commentary by the authors of this report, in Chapter 3. The themes emerging from the discussion groups were woven together at the workshop by Dr Nick Lewis (University of Auckland), Dr. Amanda Wolf, (Victoria University of Wellington) and Dr Matthew Henry (Massey University). The role of the weavers, who are all highly regarded social scientists, was to make observations on the workshop discussion and to contribute some broader reflections on what emerged. They prepared written summaries of their talks, which are presented in Chapter 4.

At the end of the workshop, Prof. Richard Le Heron (Chair, Royal Society Social Science Advisory Panel and University of Auckland) provided his views on future pathways. Professor Le Heron has contributed a foreword to this report, based on his remarks. The report finishes with conclusions (Chapter 5) and recommendations (Chapter 6) by the authors (who were key members of the workshop organising committee)<sup>2</sup>.

<sup>2</sup> It should be noted that the views expressed by the authors of this report are research comments from the three CRI social science members of the workshop organising committee, Dr Karen Cronin (ESR), Brendan Doody (GNS Science) and Alison Greenaway (Manaaki Whenua Landcare Research). They do not necessarily represent the views of either their individual research institutes or the NZCCC.

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## Aim and purpose of the report

Our aim in preparing this report has been to highlight the contribution that social science can and should make to the wider research agenda around climate change. Climate scientists, industry and policy officials are aware that tackling this most significant ‘wicked problem’<sup>3</sup> will require our best and most innovative social knowledge on creating social and economic change. This awareness is itself a valuable social asset. Social science will be central to the process of realising this social knowledge, both to understand how social and economic systems work, and to recognise and stimulate the drivers for transformation. Igniting social knowledge around climate change will involve not only integrating across disciplines, but also new ‘social technologies’ will be needed to create a dialogue across the domains of science, government, industry and the wider community. We have the opportunity not only to support positive solutions for New Zealand but also to contribute creative thinking to the international research and policy arena.

This report is one milestone in a wider process. It represents the thinking and ideas at a multi-stakeholder workshop, and the beginnings of an important conversation about what future research is needed. The next step is to establish a formal process to refine these ideas into the key social science research questions that need to be addressed in New Zealand in relation to climate change. We hope that this report will stimulate interest and investment in the research needed to support future adaptations and resilience to climate change. This document and other workshop-related outputs are available at the New Zealand Climate Change Centre website ([www.nzclimatechange.org/research/dop](http://www.nzclimatechange.org/research/dop)). The authors will also be presenting briefings on the workshop findings to key government agencies in 2011.

As members of the NZCCC, we want to promote further discussion and research collaboration among scientists in the CRI sector and universities

and beyond, and to contribute to international research efforts through the IPCC and regional forums.

If you are interested in supporting this collaboration, please keep an eye out for future events through the NZCCC website or communicate with the authors directly using the contact details below.

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<sup>3</sup> A ‘wicked problem’ is a phrase used in social planning to describe a complex problem that is difficult or impossible to solve because of incomplete, contradictory, and continually evolving requirements that are often difficult to recognise.

## Chapter 2. Reflections and a summary of some key messages from the speakers

**Prof. Janet F. Bornman**

International Global Change Centre (IGCC),  
University of Waikato

Eminent speakers contributed to the fascinating dialogue of the workshop by identifying potential roles for New Zealand's social science community within the context of current and future climate change. Each of the speakers provided many inspiring suggestions and aired some of the challenges for a closer integration between the social and biophysical sciences. The following paragraphs provide some reflections and a summary of the key messages from the speakers.

**Sir Peter Gluckman**, the Prime Minister's Chief Science Advisor, gave the first of the Plenary presentations and set the scene by drawing attention to the fact that society, science and technology are no longer operating independently but that society has to decide what to do with the science and technology that it has developed. He observed that the planet is unlikely to be able to sustain the projected 9 billion people by 2050 and this situation, together with our technological advancements, has enormous dimensions, most of which are difficult to comprehend. The crucial need for engagement with the public to promote acceptance of science was stressed, since the impacts of climate change will be felt at the local scale and will likely result in escalating conflicts as resources diminish. The challenge lies in how we will respond. This generally can take three forms – denial and delay, mitigation, and adaptation. While acknowledging the merits of adaptation, Sir Peter stressed the need to continue to mitigate, especially as New Zealand is a nation relying on trade in agriculture. He also noted that we are living in a society that generally does not easily accept what scientists say. This is the case particularly with the science around climate change, since communication of concepts such as degrees of uncertainty and probabilities is difficult. This can result in public confusion and denial. In concluding, the importance of communicating the complexity of science around climate change was highlighted as Sir Peter considered this to be critical in how society will respond. There is a pressing need for the significant risks arising from the consequences of climate change to be widely accepted at all

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levels. This is an exercise in which technology and the natural, social and economic sciences all will have a part to play.

Some of the questions that followed broadened the discussion further. Important points were made as to why New Zealand should take on a leadership role in climate change concerns. There was agreement that this role is facilitated through New Zealand not being caught up in the politics of large countries, that it is politically well received internationally, and that we have a unique role in helping to address sources of particular greenhouse gas emissions (e.g., agriculture and transport).

**Elizabeth Shove**, Professor of Sociology, Lancaster University, United Kingdom, skilfully presented a framework for thinking through interfaces between social science and the natural science perspectives on climate change. Her presentation, 'Beyond the ABC: How social science can help climate change policy', brought attention to the large number of resources within the social sciences that can be used to develop favourable environments for sustainable ways of living, as opposed to solely targeting how to change human behaviours and the choices we make. In essence, the message was about how to break away from the hold the ABC approach has had on scientists and policymakers, who for the most part believe that change can be brought about by "pulling the correct lever" on our A (attitude), B (behaviour) and C (choice). Within this paradigm, an individual's attitudes are essentially assumed to drive their behaviour and the choices that they make.

Science and policy are driving forces shaping everyday 'normal' practices, including those that are unsustainable. Prof. Shove argued, therefore, that we need to reflect and address why certain unsustainable habits become 'normal' by focusing on how these practices emerge, persist and disappear. To illustrate her arguments she considered the following examples: Why do many people now shower once or twice a day? How is it that most air-conditioned buildings and homes come to be cooled to 21°C? Why do individuals

wear business suits when it is hot outside? She noted that these everyday practices have become habitual in many places. The task of social science is to build awareness of how links across technology, know-how and ideas of what is important are made and broken to achieve sustainable practices. The argument being that these are overlapping but independent elements that assemble specific practices in specific places. The examples that were given showed that practices can become more sustainable if the relationships between body, clothing, climate and building technologies are re-arranged. Professor Shove's response to the question of 'how to ignite social knowledge around climate change', was to suggest that social scientists, scientists, practitioners and policy officials move beyond focusing on attitudes, behaviours and choices of people to address, systems, regimes, dynamics, infrastructure, practices and transitions. This broader approach recognises that policy has a part to play in maintaining unsustainable ways of life. It also highlights basic questions about how demand is made and points to material inequalities and differences. However, the lessons are not necessarily transferable, since they are specific to places, moments and groups of people, and each practice is formed differently. This approach acknowledges the limits of people's individual capacities to change their circumstances and creates space for debate about the scale and direction of change.

**Dr Maria Bargh**, School of Māori Studies, Victoria University of Wellington, in her presentation about 'Doing things differently: Indigenous peoples and climate change,' emphasised that thinking and doing things differently are key elements in research, especially with regard to indigenous peoples and issues such as climate change. Notably, she highlighted that the rights of indigenous peoples need to be safeguarded, particularly in times of crisis as historically this has not always occurred. As a leading thread into her presentation, she drew an analogy between the 'miner's canary' and indigenous peoples. In the case of the canary it was used as the first test of a

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change in conditions, while indigenous peoples can be the first to experience climate change and are powerless to avoid the associated impacts. In an adept way, Dr Bargh then went further, emphasising that indigenous peoples are also 'diverse and innovative Natives'. She exemplified her point by highlighting the existing diversity within Māori, including those arising from urban vs rural Māori (84.4% live in urban areas). For urban Māori, climate change exacerbates a host of socio-economic and environmental problems. Politically, indigenous peoples are involved in global initiatives to promote common interests related to climate change impacts. She commented on international and national agreements in place to safeguard indigenous peoples' rights. On the ground, back home, Māori are playing key roles in the development of diverse means for renewable geothermal energy in an attempt to care for their environment and people. Returning to the mantra of 'doing things differently', Dr Bargh then placed Māori in perspective with regard to climate change research providing many good examples. She noted that this means respecting Māori rights, working collaboratively and incorporating Māori viewpoints. In concluding, she observed that there is a need for partnerships with Māori to promote the goals of social science research around climate change.

**Dr Andy Reisinger**, from the New Zealand Agricultural Greenhouse Gas Research Centre (NZAGRC), spoke on international climate change research and policy processes, noting that the concerns about climate change have arisen from atmospheric and earth system scientists. He asked, so where is social science lurking in all of this? His answer was that climate change is directly linked to socio-economic development, resource management, and global agencies and knowledge bases, especially the IPCC. The presentation then developed the social science perspective and its multiple entry points into the context of climate change. Dr Reisinger explained how key elements of social science areas are closely interwoven as the drivers of our consumption, development,

economics, perceptions of well-being, and environmental concerns. In relation to adaptation, he observed that climate change requires us to deal with the rapid changes in the social fabric and to establish forms of governance and policy that operate over long timescales. Commenting on mitigation, he felt that human perceptions and behaviour are influential in the uptake of new technologies and weighing up the cost-benefits, attractiveness and credibility of plans of action. In doing so he observed that it is not always economic gain that stimulates behavioural change. Following on from this, Dr Reisinger raised the importance of understanding the psychology of risk. In particular, he noted the need to understand individual and collective perceptions of risk, timeframes for action, responses to disasters, and the motivations that frame our actions. He left the audience pondering both the challenges and opportunities that climate change presents, two of which especially reflected the aims of the workshop: 1) the need for multi-disciplinary collaboration, and 2) the need to demonstrate quantifiable value from including social science findings in decision-making processes.

## Chapter 3. Building social knowledge on climate change – summary of the breakout group discussions

After the keynote presentations, workshop participants were invited to join one of ten small breakout group discussions. Participants came from a range of sectors, including local and central government, Crown Research Institutes (CRIs), universities, private firms, consultancies, non-government organisations (NGOs) and the general public (Table 3). Each discussion group addressed five questions related to social science and climate change. Responses on the day were typed up by the facilitators of each group. These notes were then collated, summarised and analysed by the authors of this report.

The analysis involved qualitative thematic content analysis (see Lofland et al. 2006) which involves multiple readings and reviews of each transcription and the elaboration of the themes evident in the data. Some quotations have been drawn out of the notes to illustrate key themes. In other places, the general flow of the discussion is reported to recreate a sense of the conversation in the small groups on the day. Consequently, the material presented in this chapter should be seen as a narrative summary. It draws closely on what was said at the workshop, but the final presentation includes some interpretation by the authors.

None of the quotes have been attributed to individuals or organisations in accordance with the ethos of the workshop, which was to provide a free and open forum for discussion. Quotes should be read in conjunction with the body text and viewed as part of the overall output of the workshop, providing an insight into the intense and stimulating discussion between participants on the day.

**Table 3.** The participants of the *Degrees of Possibility* workshop by sector.

|                               |    |
|-------------------------------|----|
| <i>University/Polytechnic</i> | 38 |
| <i>CRI</i>                    | 28 |
| <i>Central Government</i>     | 11 |
| <i>Local Government</i>       | 9  |
| <i>Consultant</i>             | 8  |
| <i>NGO</i>                    | 6  |
| <i>Political Party</i>        | 3  |
| <i>International Agency</i>   | 2  |
| <i>Media/Journalist</i>       | 2  |
| <i>Legal</i>                  | 1  |
| <i>Consulate</i>              | 1  |
| <i>Public</i>                 | 1  |

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## Question 1

*What have you read or heard recently which stimulated your thinking in regards to climate change and society?*

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*“We need empowerment at individual, institutional and societal levels – to start people thinking and doing something.”*

Participants’ responses to Question 1 are presented here in a narrative style, in some places with direct quotes and elsewhere as a general description of what was discussed. The discussion has been organised into themes (highlighted in bold). This material should be understood as a summary of what was raised on the day – in some places the reader may agree or disagree with what was said. The aim is to share with the reader the sense of the conversation as it unfolded at the workshop<sup>4</sup>.

To start off the discussion, everyone in the small groups was first asked to recall something recently that stimulated their thinking on climate change. Participants cited various sources, including international milestones such as the Copenhagen and Cancun United Nations Framework Convention on Climate Change (UNFCCC) conferences, and the Stern Report on the economics of climate change (Stern 2007); news stories of recent climate-related events such as floods and droughts; technical and policy reports, academic journal articles, books, blogs, public commentators, seminars, political discussion; and initiatives in regional and local communities.

The most dominant theme was the need to **promote wider public awareness, engagement and action**. There was extensive discussion on why and how people become engaged in climate issues. Engaging society was seen as difficult, but the view was that “we must keep at it.”

Many participants talked about the framing of climate change. For example, people may be aware of climate change at the global level, but they do not always make the connection to local issues such as water shortages or droughts. There was a view that framing climate change as a local and personal issue would have more impact on public awareness. One person recently read a blog comment on the problem of sea level rise and was wondering how much beach area we might lose in New Zealand as a result of climate change – further noting that any such reduction in beach area would result in a cultural and social loss. Someone else

<sup>4</sup> Disclaimer – The presentation of participants’ views in this chapter is the responsibility of the authors, who have used social science methods to summarise the observations made on the day. None of the opinions expressed in this report should be seen as necessarily representing the view of the NZCCC or its member organisations.

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referred to a recent paper in *Natural Hazards* on how events can trigger a social response from flood and earthquakes – and asked “do we need to wait for events to get social action?”

There was also a need to **frame the issues in a positive light**, in terms of optimism and values for the future. One participant noted that Prof. Sir Peter Gluckman had spoken about the ‘spaceship earth’ idea, which has potential for traction – perhaps this would be received positively as a concept? It was important to recognise the intergenerational and moral issues involved. Another person wondered how emotional literacy might be connected with climate change. Someone else observed that how we act in a ‘society’ is not all that strong in terms of participating in political processes. There is a changing sense of ‘belonging’. Climate change impacts are a harbinger of wider global change, and crises for humanity both ecologically and spiritually. Participants thought that new conversations are needed about what New Zealanders want. “We need to consider and use different indications of wellbeing [...] more than GDP and growth.”

A number of people touched on the problem of **resistance and denial** of scientific information about human induced climate change. People commented that there is a challenge around the attribution of climate change (cause and effect) and climate change scepticism. One example given was a recent survey for the Wellington Regional Policy Statement. The workshop participant said that few people in this survey had mentioned climate change as an issue. This was seen to be giving only a low mandate to do anything. “One needs a better understanding of how one’s actions have an impact on others; the individualistic attitude needs addressing. This is important if we are to come together with collective solutions.”

Comments were made about the debate over climate change models. People asked, why are some scientific models more disputed than others? In the news media, air pollution models are not disputed like climate change models, perhaps due to a different perception of risk? With direct

“The most important social challenge in relation to climate change is overcoming denial.”

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personal experience, people can see car pollution more readily. One participant suggested that paying attention to climate change might be seen as a 'luxury consideration' in times when peoples' needs are pressing and they are more concerned about economic difficulties, and putting food on the table. Another person commented that challenges to climate change derive from a wider cultural context – they thought that in the United States climate change deniers tend to come from a “neo-conservative, white male background.”

While New Zealand might negotiate the minimum needed in international agreements, this would still not **address the way we live**. Participants commented that there is too much short-term thinking: “People talk about damming a river or drawing groundwater to supply a community for the next 100 years – but then what? The assumptions are based on current behaviours continuing. There is an illusion that we have agency<sup>5</sup> in this situation.” In making this point the participant referred to a publication by Höök et al. (2010).

One small group noted a tension between expecting a perfect quantitative model to predict climate change and justify policy interventions versus continuing trends of energy and resource use in society and continuing greenhouse gas production. Some people thought the focus on models diverts attention away from the need to change basic behaviour. Others thought that models needed strengthening. One person commented that the models/metrics used in Intergovernmental Panel on Climate Change (IPCC) scenarios (e.g., those used to calculate methane) need more scrutiny. Methane controls have big implications for countries like New Zealand with ruminant animals. He asked, “will we be able to negotiate methane out of the IPCC scenarios?”

Several people commented on the reliance on technical solutions, such as geo-engineering. Recent engineering reports show what might be possible in the future, but some participants questioned whose future is it, and what will be

“People think we don't need to act. Assumptions about growth continue... but technical fixes may not work. It is not like the ozone hole where there were technologies there and ready to use.”

<sup>5</sup> The concept of “agency” is about an individual having a sense of influence over their circumstances.

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the impacts on society and the environment? Several people thought that the recent UNFCCC Cancun talks had focused largely on scientific fixes. They argued that presenting technical fixes to society takes us down a dangerous path. They suggested that a more responsible form of communication would be: what can we do, especially as we are mostly urban dwellers, to live in a changed environment in a better way? One person commented that we are “working too much in a science paradigm looking for technical breakthroughs, rather than social breakthroughs.”

Several participants addressed the issue of **peak oil**. One person cited a New Zealand Parliamentary Commissioner for the Environment report looking at the impacts of peak oil on society. Another participant concluded that “no matter what we do, the battle will be won or lost on the global energy front.”

The discussion noted that people in well-off nations like New Zealand are not yet experiencing the effects of climate change as overtly as some other countries. People at the forefront are experiencing the projected scenarios now, such as sea level rise in the Pacific and lost food sources in the Arctic. One person believed that the Cartaret islanders already had experienced an evacuation to Bougainville because of climate change, and were asking for assistance for adaptation to support them in their new home. “There are different perceptions of urgency. But how many facts and figures do you need before we take action?”

A number of participants talked about the wider issues of **population, resource use and migration**, with one commenting, “There will be a massive ‘human mobility’ problem (i.e., movement of people out of affected climate change areas into new areas), but we are putting this in the ‘too hard’ basket. If and/or when bigger scale migration starts (Bangladesh etc.), where will people go? There was an assumption that countries will have to take climate change refugees, but is this true?”

Another participant spoke about attending the Wellington City Council Pacific Island Forum: “This

“At an international indigenous peoples’ workshop on climate change held in New Plymouth last year, there were stories from the cold northern areas of people seeing climate change actually happening. Meanwhile others in the world are arguing about numbers!”

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got me thinking about Pacific Island families being vulnerable to climate change impacts. There is a possibility that they may come to Wellington to live. This will have effects on Wellington and will present different challenges.”

It was noted that climate change is already having an impact on access to food and water resources, with one person stating that \$500 billion is spent annually on petroleum subsidies: “It is all tied up with issues of equity.” Participants in one group agreed that climate change adaptation needs to be related to anti-poverty development, the control of population growth, reproduction and the education of young girls particularly for developing countries, employment opportunities, and the growth of cities: “These are human rights issues.”

Another theme was **political engagement and action**, nationally and internationally. While participants agreed that political engagement was higher now than it had been a few years ago, some were concerned about the lack of action in international forums such as the UNFCCC and Conference of the Parties (COP) meetings: “Because of the many different perspectives, it was a difficult task to come up with a document on how to synthesise all the ideas [...] in terms of national and global leadership.” Some participants noted that there had been little expectation of progress being made at the recent 2010 UNFCCC Cancun talks. Several people observed that the role of China, India and Brazil is now very important in international agreements.

The small groups looked at the international debate about whether developing countries need take ‘no action’ on climate change. Some participants felt this approach maintains the separation between developing and developed countries, and leaves the focus on the intensity of emissions per capita rather than whether there is a global limit to emissions. Another person suggested that we should not be attempting to convince China and India to do something about their emissions: “This kind of attitude is patronising... It comes from dominant societies telling them what they need

to do.” Someone suggested that a useful phrase is ‘luxury emissions vs survival emissions’. “We need solutions that will not impose limits on developing countries – but allow them to develop to survive.” Another person raised the concept of our ‘hedonic’ footprint, i.e., “how much fun you can have for x-amount of emissions.” Using this measurement could lead to a more effective use of resources. We could also move to measuring units of happiness, which would be a useful addition to this debate.

Participants agreed that the international climate change issue needs **political consensus**: “We need to have an overall direction, and shared vision of the future, so that politics and climate change move forward.” Several people argued that being a small country, New Zealand should set an example and that society should stand behind our policymakers to make a difference: “We should work more for the common good.” One participant cited a book on the infrastructure system builders of the nineteenth century which illustrated how cultural values were embedded in leadership; the question now is “how do leaders lead climate change?” Another commented that leadership needed to come from both the top down and the bottom up.

Another major theme in the discussion groups was the importance of **local action**. One person cited the “Towards 2060” project in Manukau City looking at needs and activities in the community which could incorporate climate change considerations. Participants felt that adaptation to climate change could be part of general approaches to future change, especially through urban design – for example, we already have examples of local change contributing to resilience such as Transition Towns in the United Kingdom and New Zealand.

The discussion groups considered that climate change requires looking at different social structures for adaptation. It was suggested that perhaps less affluent, non-urban peoples have a different starting point. One person commented that around the world, indigenous people are often a step ahead – they are seeking to adapt now. People commented that rural communities want

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“We now live in a world of the haves and the have-nots. We cannot sustain our current lifestyles because of increasing resource scarcity.”

“It is back to business as usual. There was an opportunity with this [global economic recession] crisis to develop green economic models, but the option to try something new was not taken.”

to know what they can do, for example, to increase resilience and reduce flood risk. One participant explained that Māori communities want to increase tree plantings in catchments, increase riparian planting, and protect the marae from floods: “There are debates [in the city] about greenhouse gas figures in the abstract, but meanwhile on the marae people are getting on with solar panels, mini hydro, mini wind schemes, based on sustainability and kaitiakitanga. It is hard to get that same sense of connectedness in the urban environment.” Participants felt that action in those rural Māori communities is possible due to their environmental philosophy which includes an interest in the long-term and community resilience. Environmental issues are being seen as a ticket to solve things. But in the city, economics is the starting point.

This small group discussion raised a possible research question: are small scale communities with stronger social connections, e.g., a rural marae, in a position where there is a stronger feedback loop between experience and social action? Several people noted that local Māori communities may be taking a more holistic position as they look at climate change (along with water use, for example) from the point of view of kaitiakitanga. Climate change fits into a whole worldview and provides a framework for sustainable action. Several also quoted the author Eleanor Ostrom who has written about cooperation – and the links between theory and something happening (e.g., Ostrom 1999). Other people commented on the importance of re-connecting the ‘urban’ society to the land and environment. How do people who are divorced from the environment get engaged?

Participants believed that local government is one of the prime agencies for adaptation. It tries to support communities, but has resource constraints and needs funding from central government, which is not always forthcoming. Therefore communities are actively seeking out ways of making it happen.

A further theme to emerge in response to this first question was the **economic and business dimension** of climate change, including causes,

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effects, and adaptation. Some participants commented that the global financial recession had more impact on reducing emissions and deforestation than other measures. They noted that people were talking about getting up to 4% economic growth again soon: "It is back to business as usual. There was an opportunity with this crisis to develop green economic models, but the option to try something new was not taken." Participants in one group believed that the recent emphasis on coal mining in New Zealand, with the consequences for more emissions, was not a good signal to the world.

Other groups noted that attitudes in industry are changing. Several people cited the report by Sir Nicholas Stern in the United Kingdom on the impact of climate adaptation measures on the economy, and the impact of his recent lectures in New Zealand on business thinking. In various countries, multi-disciplinary teams are working with industry (e.g., the Aspen studies in the United States).

Others observed that there is now more discussion on balancing economic aims with climate change. Several groups commented on the development of new economic models and frameworks. One person quoted, as an example, Bjørn Lomborg's lecture in 2005, in which he spoke of the relative value/cost of saving lives through climate change adaptation versus development efforts or emergency aid (Lomborg 2005)<sup>6</sup>. Another participant mentioned the need to change structural signals, e.g., economic subsidies, which lead to more emissions. But, the group asked, how do you develop a vision for a group which perhaps does/should not grow? Stronger policy and economic connections need to be made in New Zealand around vulnerability and markets internationally: "we are not yet linking climate change to the broader issues."

One person cited the World Dairy Summit conference in November 2010, which drew a record number of participants (2200 people from 66 countries), compared to only 800 in 2009. He

observed that last year delegates were sceptical about human-induced climate change, but this year attitudes were changing – there was a huge engagement and calls for measuring and managing the situation. He noted that many interrelated aspects had emerged at the 2010 conference including that we can farm better economically, sustainably and socially to achieve thriving rural communities. Others in the group agreed that in New Zealand some farmers see recent events as part of climate change, realising that "climate change is becoming the new normal", while others do not believe they are climate change-related.

The final theme in the responses to this question, which is related to the first theme (public awareness, engagement and action) was around **communication**. Participants felt that a key challenge is: how to relate the climate change issue to the public – what does it mean for them? People expressed their views on a number of **problems** around current climate communication efforts, including:

- difficulties of a polarised debate
- concepts and issues are hard to convey in the media
- public confusion about the 'messiness' of climate science
- confusion about the issue because some do not have a way of entering the debate
- the difficulty of showing people climate change impacts
- the general public often not understanding the measurement and accuracy of science. "The challenge is in trying to communicate the concept of uncertainty, which seems to give room for strong doubts"
- getting New Zealanders' heads around the importance of linkages between individual/common and national/international
- knowing very little about what people 'think' – we generally have only commentary or opinion – not an in-depth understanding

<sup>6</sup> Alternatively this participant may have been referring to Lomborg's book *Cool It* (Lomborg, B. 2007. *Cool it: The skeptical environmentalist's guide to global warming*. Cyan & Marshall Cavendish, London. 272 p).

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There was a lot of discussion on the role of the news media. People felt that the media do not always give the correct information or enough scientific input on climate change issues: “Very often the role of the media is to elicit a response through a spectacular/dramatised portrayal of an event.” However, others thought that the issue is that we are not giving the media the right information to start with, and/or the journalists are not sufficiently knowledgeable about the subject.

Participants also raised a range of **solutions for improving climate change communication**, including the following.

- Be clear about the overall goal of communication. “Perhaps conceptually people may not even be considering mitigation options, and are jumping straight to adaptation, with the message that ‘we can adapt’”
- “If a threat is big enough you can get change, but with climate change we need to move beforehand. This is difficult because the threat [climate change] is unprecedented in modern civilisation and therefore humans do not know how best or where to move”
- Don’t scare people – show science in a realistic accessible way, show risks and solutions
- “Keep a strong message alive, give it tooth and claws, to empower people.” [In a study cited by a participant] 50% of respondents saw climate change as having both opportunities and threats
- It is important to think about how you present arguments for change, not just what you present. Use symbolism in presenting issues
- Negative change is often related to climate issues so a ‘low-carbon heaven’ as a desired future should be portrayed
- Provide open access to data and information. People can be committed to

an idea but need many approaches [e.g., science, transport infrastructure] to make it easier to act.

A number of participants focused on improving science communication: “When communicating complex subject matter, one needs to talk differently to different audiences for the message to get across. It is the scientists’ responsibility to get their research advertised and known. The issue is to talk about what one does in ways that are very accessible for people who are not experts.”

Others cited the workshop plenary presentation by Elizabeth Shove, Professor of Sociology, Lancaster University, United Kingdom, on *‘Beyond the ABC: how social science can help climate change policy’*. Prof. Shove talked about communication and social change (e.g., challenging our normal lifestyle ideas about air-conditioning and daily showers). People picked up on Prof. Shove’s idea of creating a new ‘normal’, then marketing new ideas and finding ways to communicate in a positive way.

Many participants stressed that opportunities need to be communicated: “The attractiveness of a better life, co-benefits of breaking old, unsustainable habits, shifting from talking about climate change to talking about the future. The emphasis on ‘global’ is perhaps paralysing us from doing anything. We ask: what does this mean for me? We should then also address a process of de-globalisation. A substitute term for ‘globalisation’ could be ‘interdependency.’”

It was also noted that the news media is not the only channel for getting the message across. We need to open the silo doors of different institutions and disciplines. We need to address how to communicate more widely, how to communicate across different disciplines.

Many participants were aware of the social and cultural dynamics that drive communication and behaviour change.

One person recalled a paper in *Nature* which he said had demonstrated that ‘facts and evidence’ made no difference to attitudes. It highlighted the

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leadership issue surrounding climate change and the importance of understanding how people form cultural constructs. This, in turn, raises questions around how to promote and communicate climate change and in particular the role of social groups. For instance how do networks create and influence the way people operate? Another participant stressed that collective thinking makes an impression, “since we get a sense that something must be happening.” This is also the case when people come together and discuss climate change.

Another person drew on the experience of communication when working in a zoo: “We wanted to understand how we could get visitors to engage with conservation and encourage them to take action. These experiences have influenced my thinking about climate change. We adopted a ‘friends and family model’ to get into social networks... [these] often influence and shape people’s ideas and are important sources of information.”

One participant cited a point made by the world-renowned Canadian environmentalist, David Suzuki, on the importance of intergenerational memory: “A modern fisher may say there has been no loss of fish stocks because in a certain area they get as many x-sized fish as they need. But then an elder from the same community remembers that they could get z-sized fish from closer to shore. So there has been an impact, but the long-term memory wasn’t communicated between generations.”

**“There will be progress when we start talking about the issues of climate change around the barbeque (never mind the burning of coal to grill the sausages!)”**

## Question 2

*What insights can social science offer to provide greater understanding of climate change issues and climate action?*

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The responses to the four remaining workshop questions have been written in a different format to the narrative style of Question 1. Instead we have summarised this material by presenting a selection of quotes under headings of the key themes that emerged for each question. Question 1 'warmed up' the participants by encouraging them to recall and discuss recent events that had triggered their thinking about climate change and society. Building on this, the participants were then asked to focus on what they felt social science can offer. There were wide and varied conversations about the insights social science can provide in relation to understanding climate change issues and climate action. We have grouped the responses to this question into five interrelated themes.

### **1. Understandings and insights in relation to climate change issues and climate action**

Workshop participants made wide reference to gaining better insights into social and cultural traditions, norms and values and community needs, knowledge and perceptions in relation to climate change. Frequent remarks were made on the need to understand and foster social and behaviour change through various channels, including social and community movements and government policy initiatives. The following quotes illustrate the comments made.

#### **Social and cultural traditions, norms and values**

*"Social science can expose cultures to the idea of reflecting on what is a good way to grapple with things in the future. Should certain cultures continue with traditions such as killing tigers for medicine, dressing in particular ways not commensurate with a changing climate?"*

*"New Zealand's remoteness makes it unusual. With possible future restrictions on air travel, how would this impact on 'love miles' or family/cultural connections?"*

*"How can we create new cultural values in New Zealand? For example, if your home is energy efficient and energy independent and you create spare energy that you feed back to the national grid, then you are a hero!"*

*"What are New Zealander expectations, goals and values? Are they just economic or can identity be measured by another sense of 'well-being'?"*

*"How can Māori environmental stewardship values or kaitiakitanga be translated to non Māori New Zealanders?"*

#### **Public knowledge, understandings and perceptions**

*"Social science and scientists can help in the understanding of society's perception of climate. This is important for action. Do people trust the prediction that climate will return to the norm?"*

*"The social acceptability of interventions and long-term validity of these perceptions need to be examined. Where did these perceptions come from and are they valuable or not?"*

*"Why is it that climate sceptics are heard so much in comparison to other individuals? How do we get a balanced view?"*

*"How can we bring the ideas of climate change to people? How can we make it relevant to them? Not necessarily by changing people's ideas or beliefs about climate change, but rather helping them to understand changing processes and how they impact on the environment. Or, in other words, making these impacts tangible to people; such as the river was here, now it is not there."*

*"How do people think about climate change? How are they making sense of climate change in relation to cultural, technological, political, economic and environmental practices that are tied up with sense making?"*

#### **Understanding and facilitating social change**

*"Social science in New Zealand could be world-leading to develop frameworks to support local actions rather than top down solutions. People want to move to sustainable living anyway. This strategy could be a way forward with climate change impacts but from another starting point."*

*"Examine social networks that enable innovation both in the community and the market. For instance, how*

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can you create low-carbon milk?"

"Understanding how real beneficial change happens in our communities right here and now, maybe by looking at recent changes and drawing lessons from the dynamics across the system."

"Emissions tend to drop around recessions so an analysis of the social traces left by recessions would be important."

"Social science can help understand social responses in the present and in regard to future change and why we don't do it!"

"Why do people accept some social restrictions such as not being able to use cell phones in the car or not being allowed to have open fires/chimneys, but do not accept others?"

"Elizabeth Shove's talk highlighted the success of 'Cool Biz' but didn't highlight the conditions that are needed for that to happen, such as the personalities of people, leadership and the social context. Social science can help unpack that."

"Social science links food, housing issues and people, addressing these with climate change. The notion of environmental justice is useful for this."

### **Policy and decision-making**

"We should help provide insights into understandings about community resilience. How will communities respond? This needs to be undertaken in a realistic manner that focuses on concerns that matter such as economic issues. We know effects but not the environmental impacts. When do you want science? What is the priority? At the beach what do you value? Who do you protect and how do you prioritise decisions?"

"We need to identify better ways for local authorities to engage with people."

"Governments tend to focus on economics instead of addressing the society goals. One tends to think about direct benefits rather than co-benefits."

### **Communicating climate change**

"How do we promote an optimistic outlook on climate

change? Can social science understand this?"

"We need greater awareness of what scales to communicate at. Many of the science conversations are global, so how do we connect individual engagement with this?"

"The problem with the phrase 'global warming' is that it has nice connotations. How can we develop better ways of communicating these ideas?"

"Research needs to be done on how to mainstream ideas of risk management and climate change. There is a need to understand the impact of framing for putting arguments across. It is important not to focus on climate change necessarily, but to focus on the 'things' or issues that make the environment better."

"Social science is the key to climate change discourse. Classical physical science will always be limited by high levels of uncertainty; therefore, social science is the key to accepting climate change and the need to act."

### **Migration/immigration and climate refugees**

"An understanding of New Zealand immigration patterns and how they influence communities in New Zealand."

"Migration from the islands is an interesting issue. There is already a flow of people out of the islands, so a study on how adaptation measures mesh with other policies would be interesting."

"Auckland is the sixth most intense immigrant city in the world. How quickly does it take immigrants to adapt to sustainability and climate change issues? What will the impact be of a potentially large-scale climate refugee influx into New Zealand? How would we accommodate this?"

### **Resilience and vulnerability**

"We should identify how vulnerability is understood, represented and prioritised: e.g., vulnerable climates and climate of vulnerability."

"What does a climate change resilient society look like? What are the outcomes?"

"Insights into socio-economic resilience are needed. For example, what do different communities have or

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*do that others might learn from, such as local food production, social support within families, housing design and climate-appropriate clothing?"*

### **Knowledge production**

*"How prediction is understood and practised – what do predictions of climate change impacts actually do in society?"*

*"Social science is a discipline that can help us to understand knowledge production and the usage of this. It could inform other sectors on climate change, since it cuts across many different disciplines."*

*"Social science is not one thing but links several different things. Do these contribute to each other? There is an opportunity for mapping the contributions of different forms of knowledge including the social and the natural sciences."*

### **2. New perspectives on the debates surrounding and framing climate change**

It was observed that the social science community could play a role in offering new perspectives, facilitating renewed debate and reframing discourses, concepts and ways of portraying everyday life, resource use, social change, climate change and the future. These ideas were expressed in a diversity of ways.

*"Comparisons of GDP [Gross Domestic Product] changes alone vs genuine broad holistic social advancement [measures]."*

*"Social science helps to make sense of difficult concepts. It helps people realise it is ok to swim against consumerism and to identify their sphere of concern and influence. It also gives tools for psychological and social change."*

*"Social science can focus attention of practices of citizenship that are emerging or made invisible in relationship with climate change. This occurs at local and national levels. For example, the work people are doing just to get the words climate change into local government policy documents."*

*"Not always framing issues in a climate change context may achieve desired ends without always pushing*

*'climate change'."*

*"Social science is good at historical trajectory and this could be linked to climate change issues."*

*"Social scientists could write up what we do with our lives and the resources we use to bring awareness to people."*

*"Social scientists can play a role in assisting to redefine what is 'normal' in everyday life."*

*"The concepts of climate variability and climatic events disturb the categories of climate change."*

### **3. Using existing and developing new social scientific approaches, methods and techniques in order to provide new understandings of climates, society and change**

Here the focus ranged from discussions about different ways of 'measuring' characteristics such as values, beliefs, knowledge, resilience and vulnerability, to approaches that can be used for engaging with and helping to facilitate change in communities.

*"We need active research that's educational as well as communicative."*

*"How can you help communities prioritise and solve local issues and problems whether in regard to the allocation of money and resources or making decisions about the future? What are the best techniques for prioritising values? How can you assist communities in developing and using prioritising tools?"*

*"Social science can provide different 'thinking' approaches and ways of theory building."*

*"Specific methodologies could be used to assist climate change understanding and to provide direction for larger research projects. For example, qualitative interviews and focus groups could be used for scoping research problems."*

*"Social science can provide a narrative structure for organising thought that is not provided by physical scientists. This allows for a cohesive framing of issues."*

*"What are you measuring? We need to understand how*

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*communities respond to external stresses and how this interacts with climate change. It is possible to measure the physical science attributes, but how to measure community attributes?"*

*"Longitudinal research can help to guide policy."*

#### **4. Enhancing the capacity of institutions and organisations to respond to climate change**

It was highlighted that the significant impacts likely to be posed by climate change and the cross-cutting nature of the problem will substantially challenge 'business-as-usual' for most organisations and institutions. Consequently, it was observed that there is a need to develop and facilitate collaborative partnerships and research projects for stronger leadership and new visions for the future in relation to climate change. The important role of the social sciences was widely acknowledged in this context. The selection of comments below demonstrates the variety of ideas considered.

##### **CRIs and universities**

*"Social science is an integrator. It fits into the greater context, helping one to understand the reality we have created in society. It helps one to see the multi-dimensions, whereas biophysical science is not leading us in this direction. We need to make changes in our educational institutions and create faculties of social and life sciences, as occurs in some universities, rather than keeping them separate; there is a need for interconnectedness of social and natural sciences. Separation also occurs at the school level where subjects are parcelled into distinct fields."*

*"We need forums to link up people and to raise awareness about what is going on in society. We need a central place for people to hear, a kind of 'village square' mechanism."*

*"The academic community can play a role in helping to facilitate interaction with communities that councils don't talk with."*

*"Different areas of expertise need to work together."*

*"Partnerships need to be built between the social and physical sciences. Can cancer research be used as an*

*interdisciplinary model [for other research problems]?"*

*"There is a need for some blue sky social science research."*

*"Social science needs to help connect scientists and the public, but funding is getting more difficult."*

*"Social science needs to be politicised, such as through action research where researchers can support people as political actors."*

*"Support doctoral students to focus on climate change."*

*"Need to have over-arching strategies to work out what social science needs to be done."*

##### **Government institutions**

*"There is a need for leadership around the core issues."*

*"Where are we heading? Climate changes will not be uniform."*

*"There is an overall lack of experience in understanding how to apply science at a policy level."*

*"Need to be prepared for [climatic] events and consider feedback loops, and how to connect people with these."*

*"ABC [Attitudes, Beliefs and Change paradigm] is alive and well in bureaucracy."*

*"It is not simple to increase the amount of research around climate change as there is a lack of funding for social science."*

*"Climate sceptics are not as disturbing as the Government not acting on climate change. Sooner or later we have to change."*

*"There is now more questioning of economic growth itself. We need to challenge current economic models predicated on [growing] debt and then needing growth to service the debt."*

*"To get social momentum [for climate action] you may need to have a subsidy to change cultural norms."*

*"What vision of change is being propagated? Is it one of equity, justice and fairness?"*

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## 5. Providing advice and guidance to a variety of institutions and organisations

Recognising the variety of understandings and insights that can be produced, it was observed that the social sciences could provide advice and guidance to local government and central government, ministries, communicators and scientists among others.

*“How do we know whether a policy is performing well or not? How do we measure that?”*

*“How do you guide people on a ‘practice based’ vs ‘behaviour based’ principle?”*

*“Climate change fatigue is possible. Social scientists can study, identify and strategise about how to avoid that.”*

*“Establish mechanisms for social science to feed information to or advise people working to change behaviour. Such material could help practitioners to do a better job.”*

*“We are aiming for action but the question remains about what level to focus our attention on? Is it the individual, organisational, political or institutional activities? Top down or bottom up? Or is it more about the sites where we engage?”*

*“We can offer suggestions on how to have better policy and policy processes.”*

*“What is going to be needed for farmers to adopt new technologies? What do we need for farmers to change?”*

*“How do you persuade someone to do something where the returns are very long-term?”*

### Question 3. Taking into account what we have just heard about the status of climate science internationally in Dr Andy Reisinger's presentation, how do you see New Zealand social science contributing to future research at the local, regional and international scale?

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There were many ideas about the contribution New Zealand social science could make in regard to future research at the local, regional and international scale. Research challenges and opportunities in New Zealand received the most attention, followed by the contribution that could be made regionally and internationally.

#### 1. Features and characteristics that make New Zealand unique and different

New Zealand's small population, land-based economy, experiences in co-management and co-governance and close ties with the Pacific were the most commonly identified. Consideration was given to the opportunities such characteristics afford as well as the contribution and leadership role New Zealand could make internationally. Examples of the range of ideas expressed included the following.

*"We should leverage our smallness and capacity for institutional change."*

*"New Zealand has opportunities for more cross-disciplinary research because of our size and that can be of international interest."*

*"We can make a contribution around rural communities including understandings around volunteer contributions or measures [related to addressing climate change]."*

*"The size of New Zealand allows for communication between the grassroots people, business, science, etc. The gaps between people are smaller and the ties are stronger, so by international comparison, people have a voice and there are fewer boundaries."*

*"We will not be as severely impacted by climate change as other countries like Australia and so have room to experiment."*

*"New Zealand can be a test bed [for new technologies] or alternative models [of society and economy]."*

*"How about creating a mini New Zealand IPCC? Can we develop a model between climate scientists and social sciences?"*

*"New Zealand could be used as a case study if the IPCC wanted to look at how urban form changes in a*

*country with a low population. Such research could be particularly helpful in relation to developing countries."*

*"New Zealand's geography is unique. We are a highly developed small economy with a strong agricultural base in the south. If we can get it right we could teach bigger countries how to do it."*

*"Links between New Zealand's land-based economies and social science need to be identified."*

*"We could lead the way on the role of indigenous people within the context of climate change issues."*

*"We can work with Māori knowledge. As Māori have collective control of their land and are beholden to multiple generations, not to bankers, they focus on a different future."*

*"New Zealand does need to re-focus on our location and links to the Pacific. In some respect, the global debate is less important than the regional realities, such as impacts on Pacific Islands and the potential influx of climate refugees from Pasifika and Australia."*

#### 2. Providing advice and guidance to institutions and organisations both domestically and internationally

There was further talk about the role social science could have in providing guidance and advice to a variety of institutions and organisations such as local government and central government. Reflecting New Zealand's unique features and characteristics, it was envisaged such insights could be provided both domestically and internationally.

##### Domestic advice and guidance

*"Mitigation is important but we also have to adapt. How can we move communities away from the coast?"*

*"Bring understanding to the barriers to knowledge-uptake, implementation and cultural change. How should this best be done? Is it for example by creating a Social Science Advisor to the government or holding consultations at the interface of policymaking?"*

*"Insights into different decision-making frameworks aside from cost-benefit approaches."*

*"Provide guidance on how to make the principles of*

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*adaptive management work in a policy environment.”*

*“Assist by identifying how to design policy that gives desired outcomes to different catchments both at a regional and national level.”*

### **International advice and guidance**

*“Bring an understanding to the barriers of co-management of resources such as how indigenous views of management contrast to Western views. Social science can help to break down the barriers between cultures.”*

*“We can share New Zealand experiences with other countries such as Vietnam. This could be in areas such as local government policy and approaches so that they can learn from our mistakes.”*

*“Most grass-fed agriculture is in developing countries. We are unique in that we are an industrialised grass-dependent country, which means that we have the capacity to diffuse our technology to less developed countries.”*

*“We need to keep a close watch on our own ETS scheme so we can document the effects and be able to say if it was a success or failure. Because our scheme covers different sectors, this would be a useful lesson internationally [as we could say] what happens in reality.”*

### **3. New perspectives on the debate surrounding and framing of climate change**

It was noted that the social science community could provide fresh perspectives, extend existing debates and stimulate dialogue, concepts and ways of envisaging values, everyday life, resource use, social change, climate change and the future. The following ideas were suggested.

*“Explore and experiment with the notion of climate variability through situated knowledge<sup>7</sup>.”*

*“Social scientists talk about social issues in a different way than physical scientists. We need to maintain a wellspring of knowledge.”*

*“Social science has a role in shifting the debate back to realities and to avoid the current debate about*

*anthropogenic climate change. We should look at the realities of environmental damage and the need for change and take the ‘emissions debate’ out of the equation. We should deal with real problems on the ground that people know are happening.”*

*“How can we create a post-materialist discourse in society?”*

*“Offer an understanding of the social construct related to climate change and climate change as a social construct.”*

*“Social science can produce counter-narratives to the government’s budget statements which include the use of GPI (Genuine Progress Indicator) instead of GDP.”*

*“Raise the issue of using different words to achieve social change. We need a new lens to avoid the IPCC debate. We need to draw attention to sustainability issues in general.”*

*“There is more talk about a moral economy which emphasises thrift and not greed. These normative ideas could be used to drive new technology design. It is a positive proposition in that it does not relate to being deprived of comfort.”*

### **4. Enhancing the capacity of organisations and institutions responding to climate change**

Participants emphasised that the considerable impacts anticipated from climate change and the cross-cutting character of the phenomenon will significantly challenge the way most organisations and institutions have historically operated. The comments that follow highlight the range of ideas contemplated.

#### **CRIs and universities**

*“There is a need for understanding local participation and how communities work and think as this is the basis of decision-making. There is a lack of a common agenda for social science.”*

*“The social sciences can work with the physical sciences to manage the links with policy issues.”*

*“Social science needs to be integrated into physical sciences projects. There is a need to get alongside*

<sup>7</sup> ‘Situated knowledge’ is a term that refers to the knowledge, experience and world views that an individual or group may hold and express, based on where they sit in relation to other actors.

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*communities in order to understand what they need rather than telling people what to do."*

*"We need the development of social science capabilities for responding to climate change and for helping to facilitate changing practices."*

*"How does New Zealand strategically attract foreign endowments [to universities or research institutes] to create new research opportunities?"*

*"There are not enough people looking at cultural issues around, for example, forced migration adaptation. New Zealand is a good place to do that because of our relationships with the Pacific Islands."*

*"There is a need for more multi-disciplinary projects that include analyses of the risks to people and assets [as a result of climate change]."*

## **Government**

*"What will the impact be of a potentially large-scale climate refugee influx into New Zealand? How would we accommodate this?"*

*"There will be issues around migration associated with climate change. How many people will New Zealand take and how will we respond? What if the United Nations says we have to take 1.2 million people?"*

*"We need ways to account for impacts of climate change across all aspects of government."*

*"What future spaces do we want to live in both socially and economically?"*

*"Regardless of the climate debate, governments will need to resource inquiries into the effects of population growth."*

*"There is a need to define what responsibility different levels and/or structures have."*

*"Run parallel processes to the IPCC, and in the process create different agendas in policy spheres."*

*"RMA [Resource Management Act] processes can be exhausting for iwi and communities. There is a need to learn how to deal with this but still take important concerns into consideration."*

## Question 4

*What research questions need to be addressed to develop a social science research agenda for climate change?*

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### **Summarising the research questions**

Workshop participants were asked: “If you had the opportunity to develop a New Zealand social science research agenda for climate change, what would you list as the top three research questions that need to be addressed?” The research questions generated in response were detailed and varied. Questions were asked from a number of perspectives, including those of the community, the practitioner and the social scientist. A significant number of suggested questions were associated with understanding or communicating the impacts of changing climates. Other questions focused more broadly on the production of knowledge about the social and technical relations of climate change, how societies adapt and change, governance and cross-sector collaboration.

An extensive set of research ideas emerged, which indicates wide interest in the use of social science to contribute to future climate change research and policy. We have endeavoured to capture the views of participants by presenting all the suggestions made while grouping the responses into various research areas (Table 4). We have also incorporated or paraphrased research related comments made earlier in the day about the processes of knowledge production and the way in which the overall phenomenon of ‘climate change’ is discussed and framed. This has produced a rich data set which demonstrates the breadth of thinking of the workshop participants. The research questions have been ordered in a sequence that broadly reflects the international climate change research structure by starting with understandings of the climate system, then impacts, followed by responses. The next step is to refine this material into targeted social research questions, and to ensure that they are tailored to the needs of relevant agencies. We conclude this section of the report with some observations on the questions that emerged and the general themes in the discourse.

**Table 4.** Research questions and ideas that could inform a social science research agenda for climate change.

| <b>Research area</b>   | <b>Detailed research questions and ideas</b>   |
|--|--|
| <b>Social understandings of climate, of climate change research and future scenarios</b>             | <ul style="list-style-type: none"> <li>• How do people create frameworks for understanding climate change?</li> <li>• What environmental logics of climate change are held by different actors?</li> <li>• How is the scale and urgency of climate change understood?</li> <li>• What are the socio-economic drivers of greenhouse gas emissions?</li> <li>• What are the tipping points?</li> <li>• What are Māori perspectives on climate and weather?</li> <li>• What are the social dynamics in agricultural and biological economies and how will these be affected by future climate scenarios?</li> </ul> |
| <b>Implications of biophysical climate system changes on New Zealand social and economic systems</b> | <ul style="list-style-type: none"> <li>• What will future rural communities look like? What are farmers' perceptions, choices and strategies?</li> <li>• How are businesses and industries responding to climate change?</li> <li>• How will urban systems be affected and how can they respond and adapt?</li> <li>• What is the New Zealand 'urban' and how is it related to the New Zealand rural?"</li> </ul>  |
| <b>Second order impacts and interactions between systems</b>   | <ul style="list-style-type: none"> <li>• How can intergenerational issues be addressed?</li> <li>• How will climate change affect social and cultural traditions?</li> <li>• Will migration end up being the most serious impact on New Zealand?</li> <li>• What are the circumstances of social collapse (for New Zealand and globally): what are possible desirable and undesirable futures for New Zealand?</li> <li>• How can the multiple facets of issues (e.g., health, environmental, social) be explored and/or defined?</li> </ul>   |
| <b>Understandings of, and approaches to, mitigation, adaptation and resilience</b>                   | <ul style="list-style-type: none"> <li>• What notions do we hold of resilience and vulnerability?</li> <li>• What contributes to or impedes social resilience?</li> <li>• What does a climate change resilient society look like?</li> <li>• What does 'adaptation' mean and how does it occur?</li> <li>• What cases are there of successfully sustainable communities?</li> <li>• What institutional and psycho-social processes are involved?</li> <li>• Are small-scale local communities better able to adapt?</li> </ul>   |
| <b>Social equity and justice (e.g., Māori, vulnerable communities)</b>                               | <ul style="list-style-type: none"> <li>• Will climate change increase inequality?</li> <li>• What will be the particular impacts on the poor, for women and children and for disabled, Māori and Pacific Island communities?</li> <li>• How can climate response strategies be linked to social justice and development?</li> <li>• How can the rights of indigenous people be safeguarded?</li> </ul>   |
| <b>New Zealand socio-political relations in a regional context</b>                                   | <ul style="list-style-type: none"> <li>• What are the vulnerabilities of communities at a local scale and how are these being identified in both New Zealand and the Pacific?</li> <li>• How will climate change affect relationships with Australia and the Pacific?</li> <li>• How will climate change affect Asian and Pacific migration patterns?</li> <li>• How do we characterise climate refugee processes and what are the options for the future?</li> </ul>  |

| Research area  | Detailed research questions and ideas   |
|--|---|
| <b>Processes of social change</b>  | <ul style="list-style-type: none"> <li>• Is the response to climate change different in kind and intensity from other issues, and precisely why?</li> <li>• What understandings do we have of generic processes of social change? How can this knowledge be applied to facilitate social change in response to future climates?</li> <li>• How have Kiwi values/attitudes/behaviours changed over the last 50 years?</li> <li>• How can rapid social change be achieved, to respond to the latest climate scenarios?</li> <li>• How is social resistance to climate change and its implications formed?</li> <li>• What is New Zealand doing that is working regarding climate change policy/mitigation etc., and how do we do more of it (for example, appreciative inquiry)?</li> <li>• What would enable vulnerable communities to engage in/make decisions that mitigate the effects of climate change?</li> <li>• How do trusted networks form and operate in order to help people make positive changes? How could those networks be enhanced to speed up the rate of change?</li> <li>• What are the methods used by social scientists [that could be applied] to render climate change 'governable'?</li> <li>• What are the New Zealand/Aotearoa 'flavoured' social science methodologies that might be used to engage with climate variability?</li> </ul>  |
| <b>Empowering transformation through communication and stakeholder engagement</b>          | <ul style="list-style-type: none"> <li>• What is the best way of communicating climate risks?</li> <li>• What is the role of the news media, and other communication channels?</li> <li>• How is the 'language' of climate change discourse affecting social outcomes?</li> <li>• How can communication messages be made positive and empowering?</li> <li>• What are the positive messages, how can these be seeded?</li> <li>• What is the best way to educate/empower young people/children?</li> <li>• How do our cultural norms affect climate-related behaviours, and how can we alter these perceptions?</li> <li>• How can we shift values, attitudes and behaviour?</li> <li>• What motivates actions for individuals and collectives?</li> <li>• What are the 3-6 practices that release the most community emissions – and what are the social norms [around these practices]; for example, a decision to build a coal fired power plant, or eating meat?</li> <li>• What are the limits of education, and the limits of individual action? Where is collective action most needed?</li> <li>• Is 'behaviour change' the only focus? What are the socio-technical conditions that influence this? What forms of structural change are needed?</li> <li>• How can New Zealanders effectively understand, engage and become part of the solution?</li> <li>• What new forms of public engagement are needed?</li> <li>• How can we resolve conflicts between different interests and risk perceptions?</li> <li>• How can 'believing versus non-believing' be deconstructed?</li> <li>• How can we develop co-management with indigenous peoples?</li> <li>• How can New Zealand develop a more collaborative and consensual approach to policy development, informed by the Scandinavian experience?</li> </ul> |
| <b>Governance processes, including risk assessment, risk modelling and decision making</b> | <ul style="list-style-type: none"> <li>• What forms of governance, policy and decision-making are needed?</li> <li>• What institutional changes may be needed, including new norms and conventions in and between institutions?</li> <li>• What new forms of citizenship and of leadership may be required?</li> <li>• What is the interplay between central and local government strategies?</li> <li>• How does local government build resilience?</li> <li>• What are practical and relevant solutions for local decision-makers?</li> <li>• How are local communities, including Māori, already responding?</li> <li>• What innovative institutional, technological and cultural, individual and group, practices are there around climate variability and events in local areas, cities, and regions?</li> <li>• How is national and international climate policy and action being developed?</li> <li>• What are the most effective/acceptable policy mechanisms and interventions?</li> <li>• What are the social constructs that determine how 'acceptable' policies for climate change are?</li> <li>• How can policy deliberation and collaboration be enhanced?</li> </ul>   |

## Research area

### Detailed research questions and ideas

- How can we achieve action when climate models may never be complete or fully accurate? How is 'prediction' understood and practised?
- What new processes of knowledge production are required?
- How does science and research itself need to change to meet the climate challenge – e.g., transdisciplinary research, post-normal science?
- What new forms of technology, and technology transfer, are needed?
- How can companies, organisations, government deal with multiple and fluid frameworks?
- How do we foster genuine collaboration amongst social science organisations, policy makers, private corporations and civil society?
- What pathways exist or could emerge for knowledge dissemination between disciplines and for decision making?
- How can we incorporate traditional/cultural knowledge into strategies for mitigating the effects of climate change?
- What are the aspects of resilience that would help communities adapt to climate change? In particular including Māori belief systems and practice ... and the implications for resilience.
- How are markets changing and how should New Zealand position investment, policy etc to take advantage of these changes?
- What underlies New Zealanders' preferences regarding consumption of imported and local goods (noting their environmental impact, e.g., purchasing imported unsustainable logs)?
- How does the uptake of mitigation and adaptation practices and technologies differ in agriculture in comparison to other sectors?
- How will the farming sector respond to climate policy and its effect on our rural nation?
- What are the barriers or drivers to co-management (matauranga Māori/evidence-based) of natural resources in context of climate change (e.g., water, fisheries, etc.)?
- How can critical pathways, motivation, for voluntary change and alternative approaches (e.g., regulation) to respond to climate change be identified and invested in?

### Supporting economic transformation

- How are we normalising and valuing climate change?
- How do people experience 'climate change' in everyday life?
- How is climate change approached through indigenous knowledge?
- How do New Zealanders view and respond to climate change in comparison to [people in] similar countries?
- What does the crisis over climate change indicate in terms of larger scale dynamics around industrialisation, globalisation, and sustainability?
- How do we realise this is more than just climate change; it is also cultural integration, poverty alleviation, well-being and health etc.?
- What social constructs determine what is 'acceptable' policy?
- Is adaptation about maintaining 'business as usual', or a different future?
- What new economic paradigms and forms of innovation are possible?
- What future spaces do we want to live in both socially and economically?
- How is prosperity understood; what alternatives to 'growth' are being invested in?
- How can various knowledge systems, including traditional knowledge systems, contribute to addressing climate change?"
- What new partnerships between governments, citizens, industry and science are possible?
- How is the future imagined and planned for?
- What are the grand 'organising narratives' emerging in response to global issues such as climate change?

### The 'birds eye view' – socio-political framings and reframings of climate change

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## Observations on the research questions that emerged

The research questions and ideas raised at the workshop reflect three underlying themes: framings, practices and institutions. Participants in the workshop discussed *methodologies for approaching climate change* as well as *categories for understanding climate change*. Their ideas for identifying and selecting methodological approaches (be they biophysical or social science) revealed the importance of resourcing multiple methodologies in future research programmes. The intersection of these multiple methodologies would provide for innovative experiments in quite varied situations. Some key comments included:

*“What methodologies exist for producing knowledge about climate change?”*

*“How does research create change?”*

*“What methodologies inform climate change policies?”*

*“How is climate change approached through indigenous knowledge?”*

There are many ways of framing climate change enquiries. We have grouped these in categories, see below. This list revealed to us the variety of concepts people are currently using to articulate and engage with notions of climate change through social science discourses. It will be interesting to see how this list changes, expands or is refined in coming years as conceptual frameworks for social knowledge around climate change are further developed:

- Critical
- Futures
- Scepticism
- Education
- Practices
- Collaboration
- Communication
- Citizenship
- Limits
- Culture
- Equity
- Performance
- Consumption
- Networks
- Behaviours
- Constructs
- Vulnerability
- Tipping points
- Benefits
- Markets
- Refugees
- Costs
- Pathways
- Perceptions
- Prosperity
- Identity
- Trade
- Beliefs
- Growth
- Indicators
- Resilience

## Question 5

### *How should the social science research agenda for climate change be progressed?*

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The work required for advancing a research agenda will include framing knowledge production about climates and change, enhancing the capacity of organisations and institutions responding to climate change, and developing research and policy capabilities.

#### **Framing knowledge production about climates and change**

There was a call for more work addressing how discourses, concepts and ways of representing climate change and social change are constraining current responses and identifying other options. Some participants questioned the use of the term 'climate change'. 'Climate variability' was proposed as an alternative. Other terms being used included 'global processes', 'resilience', 'vulnerability' and 'equity'. Reference was made to Prof. Elizabeth Shove's argument that we should pay attention to how socio-technological regimes are formed. We need knowledge of the practice's of everyday life that affect climate and how those practices are amenable to transformation. Ideas for reframing how climate change is researched included the following.

*"It is necessary to create more opportunities for multiple knowledge, and wisdoms including indigenous wisdoms to be resourced."*

*"We should use the concept of social innovation as a central theme for a research agenda around climate change."*

*"There is a need for rethinking how to link across physical and social science epistemologies and ontologies."*

*"We are engaging with international dialogues on science and social science models."*

*"Where could or should these social science agendas we are discussing be played out?"*

#### **Enhancing the capacity of organisations and institutions responding to climate change**

Participants referred to a limited capacity of organisations (or networks across organisations) to engage with or respond to climate change debates.

People spoke of the constraints and opportunities of current funding arrangements and the need for more investment in research on the cultural and political dynamics of climate change. We identified suggestions that could be taken up by CRIs, universities, and central and local government. Below is a selection of comments showing the range of ideas for enhancing capacity. Most common are suggestions for linking organisations, and resourcing coordinated or aligned approaches.

#### **CRIs and universities**

*"There is a need to develop capabilities for people to work across organisations, e.g., through familiarity with technology and how people manage competing demands for collaboration and building individual expertise."*

*"Together we can develop the capacity of social scientists to do the political work required to respond to climate change."*

*"The NZCCC could create, and we should align with, a strategy or research agenda coordinated through the centre."*

*"We are experimenting with science programmes framed and led by social scientists."*

*"I admire those who manage parallel work streams between physical and social science, I will try to pair up with a physical scientist on problem-oriented research."*

*"There should be more attempts to merge social and natural sciences in educational institutions."*

*"We need more public discussion of what social science in climate change is being done and what methods are being employed."*

*"We could align to New Zealand's priorities (New Zealand Inc.), this would help justify the importance of social science research. We should identify skills, knowledge etc. to progress New Zealand Inc. We need to understand the social side of innovation."*

*"We should use cross-organisational networks such as BRCSS and the Royal Society to progress the climate-oriented research agenda and fund spaces for events and co-ordination of networking."*

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## **Government**

*"They need to address research timeframes which limit what we are able to do in this field."*

*"Funders need to be more flexible, able to shift investments in response to research insights and priorities, e.g., FRST, MAF and MfE and regional councils need to respond more quickly to calls to diversify the range of social science they invest in (if any) – to move beyond the current (and longstanding) preference for science transfer, human dimensions and behaviour change. This could be done through funding of a centre for excellence or an institute in social and global change."*

*"Social research on climate change should be aligned to the government's 'No Regrets' policy."*

*"The ministries should ensure assessors of research proposals have a social science background."*

*"The government could sponsor a think tank of social scientists and practitioners to work together to define climate change research priorities."*

## **Developing research and policy capabilities**

We heard a rich array of pragmatic ideas about how people could individually and collectively strengthen New Zealand's social knowledge around climate change. Some of these were more specifically targeted than others and details of who could do this work, when and where, require further development.

*"We could create a group to oversee and provide leadership and innovation for building social knowledge on climate change, e.g., a think tank or commission."*

*"Form clusters around problems/topics, e.g., drought and we could possibly use Envirolink funding."*

*"I think there is a need to focus on the development of technologies for roads and electricity."*

*"The Royal Society could write another working paper, this time on social knowledge and climate change."*

*"Use public forums, workshops and film to help foster broad cultural engagements with climate change*

*and use web systems to co-ordinate work on climate change and social change."*

*"Make stronger links with iwi/hapu and mātauranga Māori where appropriate."*

*"Make links to emergent health issues and policy, e.g., obesity and Alzheimer's."*

*"Foster research, policy, NGO collaborations as co-researchers, finding more ways of working collectively."*

*"Ensure explicit links into civil society, like Rotary, New Zealand Philanthropic Trust, Māori trusts. Develop horizontal networks amongst social scientists and vertical networks with funders."*

*"Aggregate sub-academic level social science know-how."*

*"Run some localised, place or interest group specific experiments for responding to climate change."*

*"Develop language skills and build capability for researchers and others working in this field to use narratives more effectively."*

*"Create a forum for social scientists to meet with politicians on a regular basis."*

*"Let's support the knowledge being produced through Transition Town experiments."*

## Chapter 4. Weaving the discussion threads together

### **Observations from three social scientists**

As noted in the Introduction to this report, the *Degrees of Possibility* workshop was aimed at bringing a mix of perspectives and knowledge frames into the discussion on social science and climate change. Participants included many of New Zealand's leading social scientists, but also those with expertise in policy, industry strategy and community development.

To provide a social science overview, we invited three leading social scientists to serve as 'weavers'. Their role was to observe the content and dynamics of the workshop and draw the threads of the discussion together. Their commentaries each provided a unique perspective on what had emerged and on the way the overall discussion itself had been framed and interpreted. This provides a critical reflection on this workshop.





## Dr Matthew Henry

Resource and Environmental Planning  
Programme, Massey University

“... a path forward lies in enrolling the public as one of the science’s stakeholders, and developing an understanding of science as an embodied, practised activity that is above all else a social activity.”

In his address to this gathering the Prime Minister’s Science Advisor, Prof. Sir Peter Gluckman, described the looming geopolitical crisis posed by the combination of food insecurity, energy insecurity and climate change. In reflecting upon these words we should pause at the diagnosis of crisis. Not because of the seriousness of the problems confronting the contemporary world, but because of the pathways to action implied by the framing of this moment in terms of crisis.

### **Crisis**

History shows us that the framing of crisis events has often resulted in the pressure for swift, decisive action from leaders, especially when an event seems to provide an existential threat to societies and ways of life. Galvanised by crisis, societies can adapt in ways and with a speed that is remarkable. However, the flip side is that often accompanying the clamour of crisis is the suspension of values such as debate and engagement that are integral elements of a society’s moral economy and adaptive capacity. The post-9/11 ‘War on Terror’ has shown us the catastrophic effects of the levering apart of action and value by the pressure of crisis. Notwithstanding the frustrations of scepticism, antagonism and apathy and the seductions of technocracy, our institutional, technological and indeed personal responses to climate change must also affirm those values of engagement and quiet reason that have framed much of the discussion at this workshop.

### **Science**

Ongoing work needs to be conducted to translate the science that is central to understanding and intervening in climate change. The effects of the East Anglia ‘climategate’ controversy vividly demonstrated the power of accusation coupled with the appearance of mendacity to destabilise a fragile public concern with climate change. The answer is not to bemoan criticism and to reaffirm the scientist’s status as truth’s scribe. Rather, as was argued at the workshop, a path forward lies in enrolling the public as one of science’s stakeholders, and developing an understanding of science as an

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embodied, practised activity that is above all else a social activity. This means freely acknowledging the acts of judgement, interests, compromises and ambiguities that we already recognise as existing within our own intellectual communities. This is not an act of supplication to a clamouring public, but rather a reaffirmation of the moral economy that lies at the heart of scientific endeavour: a sense of the appropriateness of debate, critique and uncertainty in attempting to know the world.

### **Political and technological projects**

Confronting climate change requires the science of climate change to be translated into political and technological projects. In New Zealand, our Emissions Trading Scheme (ETS) is one such project. We should, however, not forget that these projects are not the neutral crystallisation of scientific knowledge. Recent scholarship within the social sciences has, for example, begun to explore the embedded *realpolitik* of climate change agreements and the instruments of an emerging decarbonised economy such as emissions trading and carbon off-sets. We should not fool ourselves into believing that adapting to climate change does not represent a profoundly disruptive moment, because the use of carbon in its various forms touches and transforms everything (Mitchell 2009). These disruptions will inevitably change relationships of power, wealth and poverty. Yet we live in a world that is already profoundly unequal, and we should not let the projects and instruments that coalesce out of the emerging projects of climate change make it more so. The social sciences have a long tradition of analysing and challenging inequality, but it is a task, as Joel Wainwright has recently argued, that requires us all to recognise our own privileged position within the very political and economic systems that have created the problem that we are now confronting (Wainwright 2010).

### **Rethinking the everyday**

An associated task, as Prof. Elizabeth Shove artfully demonstrated in her presentation to the workshop, is the careful untangling and questioning of the implicit assumptions and norms that are embedded

in the technologies that augment our daily existence. This was forcefully brought home to me in a recent book which explored the ways in which the articulation of those pre-eminently Calvinist virtues of thrift and economy lay at the heart of the steam engines whose emergence in the nineteenth century provided another profoundly disruptive moment (Marsden & Smith 2005). Technologies are social products insofar as they reflect the values and assumptions of their designers, builders, consumers and regulators. They also help produce and reinforce those selfsame values and assumptions through making some actions and paths more easily followed than others by weight of normality. Thus, before embarking on the heroic engineering favoured by some as the solution to climate change, let us look closely at the everyday technologies around us and consider how these can be rethought and practised with the quandary of climate change at the heart of their design.

### **Beyond climate change**

Unfortunately, climate change is simply one of the perils confronting us from continuing environmental degradation. Despite the seriousness of the threat posed by climate change, it is, as was argued at the workshop, a mistake to forget about other serious environmental problems such as declining water quality and species extinction, which also are the consequence of our current developmental trajectory. The question becomes: how do we confront one without letting the others slide? A beginning is to recognise that it is not a zero-sum game. We also need to consider the ways in which a response to an immediate problem can support our mitigation of and adaptation to climate change, and vice versa.

### **Scale**

Finally, at what scale do we need to think and act? We have framed climate change as a global problem, yet as has been argued at the workshop, and by people such as Mick Hulme, our experience and understanding of climate lies embedded in a myriad of local cultures (Hulme 2008). We need to understand that climate change

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will be experienced and made meaningful in countless small ways. Paradoxically then, climate change will be experienced by us all, but its effects will not be universal. As scholars, we need to contextualise climate change, resist the temptation of the grand gesture, and instead concentrate on the patient, forensic task of building consensus, projects and technologies that recognise but do not reinforce inequality, that are conscious of the values embedded within them, that are alert to the baroque complexity of our world, and empower the small and contextual in the changing of the global.



**Dr Amanda Wolf**

School of Government,  
Victoria University of Wellington

“...we have come to normalise interdisciplinary practice as hard. What if we challenged that and simply got on with interdisciplinary work and worried about whether it is hard some other time?”

The *Degrees of Possibility* workshop left me feeling positive overall, but in line with my charge as a workshop weaver, I offer the following reflections on the discussions throughout the day, some of which may seem provocative.

### **Questioning ‘normal’**

Are there elements of ‘normal’ ripe for challenge? I have two suggestions. First, we have come to normalise interdisciplinary practice as hard. What if we challenged that and simply got on with interdisciplinary work and worried about whether it is hard some other time? Second, we acquiesce in the social science squeeze. We have economics on the one side (note for example, Prof. Sir Peter Gluckman’s reference in his speech to “social science *and* economics”) and psychology on the other (for example, a participant cited the important contributions of neuroscience to smoking-cessation social-marketing campaigns). We normalise a shrinking space for the rest of social science. Instead, I see social scientists who possess a remarkable breadth of understanding across disciplines and spheres of study. Perhaps we need to combat the normalising of a cringing, shrinking middle. Although Prof. Elizabeth Shove’s chameleon is a survival specialist, and all of us (some of the time) will be chameleons, we don’t want to get stuck. I suggest we adopt another metaphor, perhaps one with wings.

### **Responding to the complexity of climate change science**

I heard two sorts of social science modes of response. The first, epitomised by Prof. Shove’s critique of the ABC approach, conceives social science as a project to get people to change their behaviours in ways suggested as necessary by biophysical scientists. While much more sophisticated in their appreciation of the contributions of social science, many discussions of ‘reframing’ at the workshop seemed to slip dangerously close to reinforcing the role of social science as helper. These discussions glossed over questions about who is doing the framing and for whom, as well as why it is thought that a single

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reframing is what stands between the status quo and some improved condition. Second, however (more faintly but more encouragingly), I heard acknowledged that the social world is also complex, and can't be fully known or managed. Even if we were to embrace social-science-as-helper, the desired 'attractors' cannot always be intentionally created, and hence efforts to model or modify behaviour may miss some more fundamental insights of what 'real' social life offers to those who seek them. People live and breathe in everyday complexity, and it is quite normal that they do. We heard from Prof. Sir Peter Gluckman that climate change research is unusual in the nature and extent to which the past is used to predict the future. Contrast this, however, with much of social science research, which specialises in 'thinking the things that have never been 'thunk' before' – in a word, getting *new* ideas and having a good look at them. In this regard we may need to get better at this activity – hearing ourselves think and hanging onto the ideas that don't 'fit' long enough to know what we are dealing with. In my observations at the workshop, there were instances when there might have been more openness to new ideas. We need to be open *and* humble: open to pursuing and finding answers to "what" questions, and humble in offering explanations.

### **Research process, product, and identity**

Science as a process evinces a sceptical stance toward knowledge, and is not about the production of 'facts'. Yet, I was struck once again at the workshop by the biographies of ourselves as researchers, and the ways in which we embody or incorporate our research. We wear our curiosities, and when we are in luck, we are able to pursue them. We then, too, do the process thing, and provide the provisional knowledge products. But, perhaps there is a certain identity and way of life to how social scientists speak and hear. Following on from point 2, there is the matter of how social scientists 'get alongside' others; an alignment that is special and deserves our careful attention and nurturing.

### **Social scientists' practice**

The 'practice' is one of *with* not *on*. I am reminded of my understanding of the origins of 'consciousness', courtesy of William Stephenson. In a sense that was obliterated by Descartes' 'consciousness of', the older 'conscious *with*' denotes a sharing, a knowing with, a common understanding with each other and with the world we have lived in for eons. This leads me to want to encourage us to think about recovering what we know, and elevates the salience of the extraordinary growth of urbanisation (with its implications for what has been lost). The workshop conveyed an undercurrent to the effect that "science isn't science without public understanding" (if there is no social demand or no social response, what is there?) But perhaps public knowledge isn't public knowledge without social science. Even if it is somehow true that the general public lacks the ability to distinguish reliable and unreliable science, there is inescapably some marvellous ability there: the species that might have long since died out really manages remarkably well.

### **Finally**

To anyone who has a role to play in making things like this happen, I encourage thinking about enabling a social science version of Smash Palace and "Are Angels OK?" The "Ignite" project could create and foster a kaleidoscope of our stories, helping to accumulate patterns and perspectives that otherwise are lovely, but solitary chips of glass. Such an initiative would go some way toward addressing the scale challenge mentioned at the workshop. We have hundreds of stories of storm-surge management or of landscape vulnerability or of marae gardens. It should not be beyond us to ignite small fuses, and to start to join small flames, which is crucial to making clear our responses to the climate change challenges.

There was a lot of celebration of the New Zealand way and its potential on the global scene. We may have a perfect opportunity in addressing the perfect storm.



**Dr Nick Lewis**

School of Environment,  
University of Auckland

“... if the excess pressures on the biophysical processes of climate change are generated by social process such as accumulation, consumption, urbanisation, and carbon economies, climate change knowledge needs to develop (from) new and radical understandings of these processes.”

### **Setting up the room**

‘Climate change’ has become a touchstone twenty-first century governmental discourse, but from a social science perspective we can also regard it as a shorthand for confronting the environmental consequences of modernity and the knowledge industry that goes with it, rather than merely a technical term for a set of propositions about climate variability. It can be understood as a political project of knowledge production intimately connected to resource allocation and social action. Interventions in the name of ‘climate change’ must be set in this context and in the debates that frame our knowledge of it. To this end, I draw attention to four recent papers that interrogate the place of social science in ‘climate change’. The papers open *Degrees of Possibility* to a reading that emphasises the complexity of the social in climate change, the ability of social science to know this complexity, and the potential of social scientists to do things differently.

Geographer Eric Swyngedouw (Swyngedouw 2010) depicts climate change as a dramatic script that mobilises apocalyptic imaginaries. He claims that this script is assembling all of us from consumers to oil companies, governments, and new age anti-materialists into a grand consensus. He questions the consequences of depoliticising social change behind this facade, including further marginalising the poor, reproducing existing inequalities, and eliminating the creativity of contest over visions of a new world. This consensus, he argues, makes it harder rather than easier to invite and imagine transformation, which must be a political process. Swyngedouw advocates putting politics back into climate change debates: asking what matters for different groups, how, and to what extent. He adds that the creativity of politics rests on the construction of great new fictions, perhaps even utopias. Both these challenges are jobs for social science.

Joel Wainwright (Wainwright 2010) also worries about a “newly strengthened scientific consensus” and the way that it has “congealed” around a set of

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imperatives. He insists that social science is essential to analyse “the social processes driving the physical processes.” He argues that not only should this contribution transcend advocacy for social change and guidance of behavioural change, but it must if change is to be achieved. He points out, in a language often used by biophysical science, that the “black boxes” of people, politics and economy keep popping open. It is to these areas that the scholarly interest around climate change ought to be directed, but by social scientists. He argues that accumulation begets accumulation; capitalists cannot help but treat nature as resources; and accumulation generates inequalities of wealth and power. This means that we need to refocus our targets in terms of stimulating change, and also that science needs to be wary of its relations with the state and other funders. Social science can remind ‘big science’ that its job is neither to reproduce itself or the state, let alone to accumulate by exploiting resources. A consensus that allows scientists to become both social scientists and bedfellows of the state is unhelpful.

Canterbury geographer Julie Cupples issues three challenges to scholars working with nature-society relations (Cupples 2009). Working from an argument that nature is co-produced by biophysical processes and our knowledge of them, she asks us to abandon both social constructivism (of nature) and scientific realism in favour of co-production, take non-scientific knowledge seriously, and be more honest and reflexive in our thinking and practice. There are biophysical realities, but we know them through human experience, ideas, and political-economic processes, and it is in these respects that they have social meaning. Cupples talks of ‘climate knowledge’ as hybrid and mutating, and points hopefully at indications that the ‘strained lines between the natural and cultural are dissolving.’

To these challenges, we might add a fourth from the work of Michael Carolan (Carolan 2009) – to generate an embodied environmental politics that brings people back into a sensuous kinship with the natural world and places the lives of people and the worlds that we want to bring about at the

heart of scholarship and politics. He claims socio-environmental scholarship to be dead because it is not centred on lives. Carolan places an accent on producing new stories and embodied actions rather than text and habit, and suggests that this is most likely to come from local knowledge produced in place.

### ***Degrees of Possibility***

Whilst reaction against the different reductions of social science provided a platform for consensus in the workshop, participants took seriously the invitation to confront possibility. The stark realities and subjectivities of competitive funding models were clearly in the room as delegates emphasised the virtues of their research programmes, but they were undercut by concerns with values and the content of climate change.

If there were a consensus among participants at *Degrees of Possibility*, it was that ‘climate change’ is a social phenomenon and must be studied as such. For most, this proposition is straightforward: if the excess pressures on the biophysical processes of climate change are generated by social processes such as accumulation, consumption, urbanisation, and carbon economies, climate change knowledge needs to develop (from) new and radical understandings of these processes. To this, participants added two further propositions: current climate change ‘science’ does not recognise the centrality and complexity of social processes; and more of this work is required as a platform for understanding ‘climate change’ and acting in light of this knowledge.

Many participants outlined their ‘climate change’ work in the sphere of behavioural change. Like others involved in measuring the likely implications of climate change models and evaluating change programmes, they questioned whether their work was fully valued and advocated further educational and other programmes to induce behaviour change. These researchers argued for the particular capabilities of social scientists in completing this work. Others argued that we must move beyond behaviouralist explanations to unlock the black

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boxes and know 'climate change', its content, politics, drivers, and implications, and in turn how we are acting and how we should act. They tended to emphasise processes of knowledge formation itself, as well as inequality and capital accumulation. Several argued for a prior and fundamental assault on inequality as the basis for meaningful and effective response, as well as the basis for any effort to project better worlds. They expressed frustrations at the reduction of social science and its contributions to effecting behavioural change and/or measuring vulnerability and likely social impact.

Whilst all participants acknowledged the importance of effective representation of the biophysical processes of climate change, their consequences and the need for human action, they railed against the reduction of social science to communication. Similarly they welcomed the work of social researchers in disrupting dominant models of exclusionary, independent and competitive science, but saw the socialisation of science as only one domain of social scientific contribution. Social scientists at Crown Research Institutes in particular reported on how this understanding of social science as socialising and communicating science is steeped into the institutional structures and strictures within which they practise. They add that it distracts from their potential in other areas, and indeed often leaves biophysical scientists to examine social processes.

### **Keynote interventions**

Prof. Elizabeth Shove offered us both a way to conceptualise the complex science required of a social science of climate change and a bridge between different understandings of its potential contributions. She extended the behaviouralist gaze to social theories of practice and asked the important questions of how practice takes shape and travels. Whilst relatively silent on the social practices of investment, production and policy formation, she did exhort us to engage from the bottom up with actors in these spheres by framing possibilities and new ways of consuming and being consumers.

Prof. Sir Peter Gluckman reminded us that biophysical science too is an uncertain and sceptical process of knowledge production. Although he did not articulate a clear role for social science or an understanding of its potential, he did highlight some of the social processes at work in climate change. His presentation *in effect* invited social scientists to make the case for social science and to localise Wainwright's arguments about the importance of clarifying what and whose interests are in play around climate change and to what effects. By identifying science communication as an escape route from the contradictions wrought by these politics, Gluckman invites us to argue otherwise.

Andy Reisinger framed the science requirements of climate change in a way that highlighted the demands being made of social science. His framing confirmed for us some of the current reductionist understandings of social science, yet mapped these in a way that might help social scientists make the case about the value of their work.

Maria Bargh invited social scientists to engage with policy from beyond New Zealand Inc. frames of reference. With explicit reference to Māori engagement with the climate change industry, she emphasised the local, diversity of experience and vulnerability, and identity to frame possibilities of different futures. She invited us to consider how climate change as a project of knowledge production might be reshaped by peoples who own their own land collectively and are answerable to kaupapa and whakapapa rather than banks. Her example of people doing differently was designed to inspire us to think differently.

### **What then can social science in New Zealand contribute?**

Social scientists focus attention on values, diversity, and inequality in a coherent and theorised manner. This is a crucial contribution to climate change research. Delegates emphasised that climate change invites, if not demands, radical thinking about social futures, from scientific fixes to modernity to utopian visions of technological and/

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or non-technological futures. Social scientists are already working to inform a technological future with new interpretations of development, and to imagine more than just post-material lives. Behind this contribution lies a science of the social as well as a politics of knowledge production and being in the world. Both of these are valuable, not just to temper powerful actors (including science leaders), but to help frame the key questions for scientific endeavour and investment around climate change.

Social science engages politically. It asks questions about difference, power and justice. As soon we start asking our questions, we begin to change the world. We make visible and challenge the origins of norms, the influence of context, the basis of beliefs, the nature, and the form and content of practices. We highlight the diversity of values at work, which must be part (either by inclusion or exclusion) of any imagined futures and plans to get there. Given that the climate change knowledge formation is often premised on making better worlds, social science provides an intellectual space for expressing and debating political, moral and ethical categories, concerns, and objectives. It gives us understandings of social change and a language for helping groups to re-imagine, revalue and remake the world.

Importantly, as delegates highlighted, New Zealand is seen not only as a good and just society, but one based on reason, modernity, and a well struck balance between material and socio-environmental qualities of life. It represents hope for many in the world, which gives us an opportunity to lead and to be seen as leaders – further enhancing our capability to sustain our qualities of life. Social scientists help New Zealand to continue to strike these balances. Delegates suggested that New Zealand should seek to contribute, model and lead wherever it is able, rather than just where it might find short-term competitive economic advantage – from clean energy production to collaborative policy setting.

Beyond all this lie the current roles of social science in encouraging behavioural change, measuring impacts in scenario modelling, evaluating policies,

and communicating and socialising science – within science and between science and broader publics. These roles are crucial and need to continue, but set within a more widely valued social science.

### **Releasing social science possibilities in New Zealand**

Not surprisingly delegates advocated many and different approaches to realising the value of social science in climate change. At base, they advocated more of the accepted work of social science in climate change, and an extension of this work into analysing social change, and visioning futures. On this base they called for:

- recentring climate change debate and research investment onto social processes (investment trajectories, human mobility, livelihood generation) and social consequences (massive socio-economic change, new mobilities, reworked practices of everyday life)
- prior considerations of equity and justice
- revaluing the work and ideas of social scientists, and putting them to work
- reframing wider public debates as possibilities for alternative futures rather than as apocalypse, and widening debates to a greater range of participants so as to canvass a greater range of voices and to hold policy and big science to greater account (in narrow measurable terms and in terms of foreshadowed possibilities)
- a more visceral politics that confronts implications for different groups and unpicks the consensus of interests in the climate change industry

### **Performing, embodying, and expanding Degrees of Possibility**

How then did *Degrees of Possibility* shape up in terms of the challenges laid down by Wainwright and others? The workshop *brought life* to the social science of climate change. It put bodies in a room, identified them, brought to bear their senses,

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created a temporary collective body, and generated memories and connections. It made *visible and connected* small communities, Māori, capitalists, policy makers, international experts, NGOs, local researchers, theorists, and practitioners. We were reflective, and continue to reflect through this text and other interventions. In the room, both individually and collectively, *we performed* a very different form of knowledge production, a science of climate change that crossed many boundaries (institutional, disciplinary, theory/practice, private/collective, generational, cultural and many others). *We challenged research investment shibboleths* and *repositioned policy* as one of multiple possibilities rather than the end-point of knowledge. The social science challenge and different interpretations, performances and representations of it *disturbed the grand consensus*. *Different visions*, imaginations of climate change and social science for climate change were tabled. Even if many participants remained locked into this consensus by institutional and ideological commitments, the day suggested new cross-cutting commitments and released new collective energies.

The day *ignited social knowledge* of socio-environmental change and performed a different politics of knowledge production. We were all able to agree that if climate change is really socially made, then understandings of the phenomenon and what needs to be done lie in the social domain. Following Prof. Shove, we were able to agree also that this requires a social knowledge of possibilities and practices as well as a knowledge of social practices.

## Chapter 5. Conclusions

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Society matters. This is the key message from the many ideas and reflections that emerged from the lively discussion at the *Degrees of Possibility: Igniting Social Knowledge around Climate Change* workshop. John Urry in his book *Climate Change and Society* forcefully reminds us of the importance of placing the 'social' at the centre of both the analysis of climates and of the consideration of alternative futures (Urry 2011). His account points to the significant role that social science can play in understanding and responding to the phenomenon of climate change (see also Chappells & Shove 2005, Hulme 2009, Nordhaus & Shellenberger 2007, Prins et al. 2010, Shove 2010a). It is clear that understanding the complex and interrelated nature of climates and societies is critical, and that the social sciences have an important role in addressing this challenge.

Our resource intensive and high-carbon lifestyles have produced changes in the Earth's systems and climates. This is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level (IPCC 2007). It also appears likely that the frequency of heatwaves and the reoccurrence of heavy rainfall events have increased in many regions over the past 50 years, and globally the area affected by droughts has increased since the 1970s. Many natural systems are being affected by regional climate changes (particularly temperature increases), as are many social, cultural and political institutions. If greenhouse gases continue to be emitted at or above our current rates, it is expected that this will cause further changes in climate, and that these are very likely to be larger than those observed during the twentieth century (IPCC 2007). These changes could have substantial negative and even catastrophic impacts on ecosystems, water, food, health and populations (e.g., migration and displacement) (IPCC 2007, Lovelock 2006, Lynas 2007). Such prospects have resulted in an increasing recognition of the desirability of transitions to more sustainable and low-carbon ways of living, and of learning how to mitigate and adapt to the

future risks and challenges presented by changing climates. The many different aspects of society (e.g., social processes, institutions and practices) which are central to our high-carbon lives potentially also will be an important component of future low-carbon lives (Chappells & Shove 2005, Urry 2011).

*Degrees of Possibility* successfully brought together interested individuals and groups from a range of organisations and institutions. This workshop helped to facilitate dialogue both within and across the social and biophysical sciences, and the research and policy communities, in relation to the production of social knowledge around climate change.

Following on from the keynote presentations, the small group discussions and the 'weaver' observations at the workshop, we suggest that social science can contribute to future dialogue in four important ways.

1. Improving social understanding of climates and the relationship between climate and societies.
2. Providing new perspectives and potential breakthroughs in the debates around climate change and supporting cohesive social discussion and constructive policy development.
3. Applying and developing social science knowledge and tools to create new insights and pathways for institutional transformation, organisational learning and social change.
4. Providing evidence to support decision-makers in institutions and organisations.

Internationally, the social sciences have already made contributions in each of these four areas, but more are still needed, particularly in New Zealand. A prime example is the insight that social science has provided on campaigns and strategies designed to promote a range of behaviour changes in relation to energy saving, water conservation, waste recycling and green consumption. It has been assumed that helping to facilitate behaviour change will reduce the environmental impact of

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existing lifestyles and mitigate climate change. Although current approaches have provided some important lessons, most of these initiatives have failed to capture the interest and imagination of the wider public (Hinchliffe 1996, Slocum 2004). Such failures stem from the formulation and scientific framing of climate change as a singular, global and temporally distant problem removed from people's immediate concerns and everyday lives (Lorenzoni & Pidgeon 2006, Macnaghten 2003, Slocum 2004). Subsequently, many scholars have sought to examine how climate change and sustainability can be reframed and re-imagined as locally understood and relevant issues (Barr & Gilg 2006, Brace & Geoghegan 2011, Macnaghten 2003, Owens 2000, Shove 2003, Slocum 2004). Others have highlighted the need to replace the 'doomsday discourse' of climate change with "an imaginative, aspirational, and future-orientated one" (Nordhaus & Shellenberger 2007, p. 2, Prins et al. 2010). Practice theorists such as Elizabeth Shove (2010a, Shove 2010b), suggest that the problem of the narrowly defined paradigm of 'behaviour change' cannot adequately account for why certain social practices and patterns of consumption and demand, such as energy and water use, emerge, persist and disappear (see also Southerton et al. 2004, Warde 2005). We need a much deeper form of social analysis to inform effective social action and change.

The *Degrees of Possibility* workshop illustrated the insights, perspectives and framings that social science can bring to the challenge of understanding climates, societies and change. This workshop was organised in the belief that the New Zealand social science community can make a significant contribution to this challenge both domestically and internationally. This report indicates the scope of research required around areas such as: social and cultural, traditions, normalising and valuing; understanding and facilitating social change; agricultural and biological economies; Māori perspectives on climate and weather; co-management of resources with indigenous peoples; governance, policy

and decision-making; notions of resilience and vulnerability; communicating climate change; Pacific Island migration patterns and climate refugees; and knowledge production.

A review of New Zealand's social science capacity (MoRST 2005) called for the establishment of a new interdisciplinary research and evaluation output in the New Zealand science system. It was envisaged that such an initiative would help facilitate a more effective contribution by the social sciences to emerging cross-cutting policy issues such as sustainable development. Following on from this, the New Zealand delegation to the World Social Science Forum in 2009 concluded that social science makes a central contribution to global 'grand challenges' such as climate change and can inform management on all scales, from the organisation, to the community, city and nation. In particular, social science "underpins successful and adaptive communities, innovative business practices and well managed ecosystems." The delegation report emphasised the co-production of knowledge by scientists, policy makers, politicians, indigenous, community and industry leaders. Action is required to maximise this potential by seeding new research initiatives, and embedding social science more fully in the design of research platforms (MoRST 2010). More recently, the World Social Science Report (UNESCO 2010) has reaffirmed the role that social science can play not only in analysing social issues but also contributing practically to policy, economic and social outcomes.

If the New Zealand social scientific community is to realise such contributions, however, significant efforts will be needed to enhance the capacity of relevant institutions and organisations to respond to climate change. Such initiatives may include developing and facilitating collaborative partnerships and research projects, establishing new funding arrangements, and investing in research on the social, cultural and political dynamics of climate change. In the meantime, we encourage researchers to continue to engage and grapple with these matters in their theoretical and

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practical dimensions – and to demonstrate the value that social science can add to understanding and responding to climate change.

We hope this report will help to ‘ignite’ interest in the significant contribution the New Zealand social science community is making to social knowledge around climate change. More importantly, it is our desire that the workshop and this report will be part of catalysing new initiatives, which are crucial to the work of re-imagining and re-conceptualising our current and future climates.

## Chapter 6. Recommendations

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After consideration of the ideas, concerns and suggestions discussed in the workshop we, as report authors, have prepared eight recommendations for advancing social knowledge around climate change. We envisage that this will provide the basis for planning and discussion with interested parties in the near future. Our recommendations are these.

1. Initiate a process to develop and implement a New Zealand social science research agenda on climate change, which would:
  - a. analyse and interpret the research ideas and suggestions raised at this workshop, and translate them into a refined and targeted set of social science research questions
  - b. summarise the information and knowledge needs of research end-users
  - c. correlate a. and b. above to establish an overarching social research strategy, including the top priority research issues, questions, and approaches.
2. Identify innovative research methods, including mechanisms to effectively transfer social science knowledge to end-users in government, industry and the community.
3. Establish an inventory of current and planned social research in New Zealand related to climate change, including research on adaptation, mitigation, resilience and sustainable development.
4. Identify the current capacity (i.e., expertise, interest and skills) in the New Zealand social science research community in relation to climate change and current areas of research strength and weakness.
5. Identify where social science can be embedded and integrated with biophysical science in existing and planned climate change research agendas and programmes in the government, university, CRI and industry sectors.

6. Establish approaches and institutional arrangements to stimulate further transdisciplinary research in the government, university, CRI and industry sectors.

7. Identify where and how New Zealand social science expertise can contribute to climate-related research in the Asia Pacific region and the wider international context, including forthcoming IPCC programmes (e.g., the Fifth Assessment Report).

8. Establish mechanisms to ensure that New Zealand social science research on climate change is appropriately valued, conducted and evaluated by those with relevant expertise.

The development of a research agenda and any programme of climate-related social science should itself reflect the principles of 'co-production of knowledge' by effectively involving expertise from a range of disciplines and sectors in society; at the same time the social science community needs to focus its attention on developing the most appropriate theoretical frameworks, questions and methods to inform the research agenda.

In terms of implementing these recommendations, we propose to initiate a discussion with government policy and research funding agencies in 2011. This will take the form of a 'roadshow' to brief key officials on the outcomes of the workshop, based on this report, and to progress the task of identifying the most relevant and important social science research questions that need to be addressed. This initiative will be developed in consultation with other biophysical and social scientists under the umbrella of the NZCCC, and is also being supported by the Humanities and Social Sciences Committee of the Royal Society of New Zealand.

The outputs of the *Degrees of Possibility* workshop provide a rich source of research ideas. To begin the process of refining this material, we have highlighted three research themes that could inform the development of a New Zealand social science research agenda for climate change (see

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Table 5). These themes were developed through a detailed thematic analysis of all the ideas raised and comments made at the workshop. To facilitate discussion we have also generated a summary of key research areas and illustrative questions that emerged from the workshop (Table 6). In addition, given the current focus on social science in international climate change research forums, we have included the social science-related entry points that have been identified in the IPCC Fifth Assessment Report process that Dr Andy Reisinger presented at the workshop (see Appendix, Table 1). This is indicative of how important social science has become in international climate change research, and provides a useful point of comparison with the ideas that emerged at this workshop.

Providing summarised workshop discussions, in-depth analytical statements from leading social scientists and a series of recommendations for future steps, this report offers a strong platform for future dialogue in New Zealand and from New Zealand.

**Table 5.** Key research themes to be considered in the development of a New Zealand social science research agenda for climate change.

| Theme   | Comment  | Impact   |
|---|--|--|
| <b>1. General framework for inquiry</b>       | <p>How are we making sense of and responding to the phenomena of global change, including human-induced climate change?</p> <p>Any research strategy first needs to make visible the general framing of the problem, and the process by which frames are established.</p>  | <ul style="list-style-type: none"> <li>Collectively develop frames of 'the human', 'the social', and 'climates' that make people more aware of and more reflective about, intervening in and changing the social world.</li> <li>Embed more diverse imaginaries of futures, economies, ecologies and change into media, government and research discourses.</li> </ul>   |
| <b>2. Changing practices in everyday life</b> | <p>How well do we understand the specificities of resource-intensive everyday practices in New Zealand? How can resilience and adaptation be introduced without undermining our commitments to quality of life and social cohesion?</p> <p>The research strategy should invest in numerous and diverse policy-research-practitioner experiments to support future resilience and transformation.</p>   | <ul style="list-style-type: none"> <li>Identify the processes involved in the circulation of resource intensive patterns of everyday life in New Zealand and how these transform.</li> <li>Examine the formation of specific practices and the systems through which associated practices emerge and disappear.</li> <li>Create a better understanding of the emergent characteristics of resilience practices in New Zealand.</li> <li>Identify social change mechanisms to inform and transform social practices.</li> </ul> |
| <b>3. Enhancing institutional capacity</b>    | <p>How can we enhance capacities for understanding and addressing climate-related practices across organisations and sectors?</p> <p>We need to create and resource opportunities for social innovation, linking pragmatic and intellectual endeavours. This includes designing initiatives and research projects which allow for the co-production of scientific and social knowledge across government and NGO agencies and researchers.</p> | <ul style="list-style-type: none"> <li>Foster networks across CRI and university researchers working on climate change.</li> <li>Foster stronger science and society policy networks.</li> <li>Fund initiatives that link community-based research projects to CRI and university researchers.</li> <li>Fund research that goes beyond examining behaviour change to address changing social relations.</li> </ul>   |

**Table 6.** A summary of key research areas and illustrative questions that emerged during the workshop. The full set of questions is presented in Table 4, page 41.

| Research area  | Detailed research questions and ideas   |
|--|---|
| <b>Social understandings of climate, of climate change research and future scenarios</b>             | <ul style="list-style-type: none"> <li>• How is the scale and urgency of climate change understood?</li> <li>• What are the socio-economic drivers of greenhouse gas emissions?</li> </ul>  |
| <b>Implications of biophysical climate system changes on New Zealand social and economic systems</b> | <ul style="list-style-type: none"> <li>• What are farmers' perceptions, choices and strategies?</li> <li>• How are businesses and industries responding to climate change?</li> <li>• How will urban systems be affected and how can they respond and adapt?</li> </ul>   |
| <b>Second order impacts and interactions between systems</b>   | <ul style="list-style-type: none"> <li>• Will migration end up being the most serious impact on New Zealand?</li> <li>• How can the multiple facets of issues (e.g., health, environmental, social) be explored and/or defined?</li> </ul>  |
| <b>Understandings of, and approaches to, mitigation, adaptation and resilience</b>                   | <ul style="list-style-type: none"> <li>• What contributes to or impedes social resilience?</li> <li>• What does 'adaptation' mean and how does it occur?</li> <li>• What cases are there of successfully sustainable communities?</li> <li>• What institutional and psycho-social processes are involved?</li> </ul>  |
| <b>Social equity and justice (e.g., Māori, vulnerable communities)</b>                               | <ul style="list-style-type: none"> <li>• What will be the particular impacts on the poor, for women and children and for disabled, Māori and Pacific Island communities?</li> </ul>   |
| <b>New Zealand socio-political relations in a regional context</b>                                   | <ul style="list-style-type: none"> <li>• How will climate change affect relationships with Australia and the Pacific?</li> </ul>  |
| <b>Processes of social change</b>  | <ul style="list-style-type: none"> <li>• What understandings do we have of generic processes of social change? How can this knowledge be applied to facilitate social change in response to future climates?</li> <li>• How can rapid social change be achieved, to respond to the latest climate scenarios?</li> </ul>   |
| <b>Empowering transformation through communication and stakeholder engagement</b>                    | <ul style="list-style-type: none"> <li>• What is the best way of communicating climate risks?</li> <li>• How can we shift values, attitudes and behaviour?</li> <li>• Is 'behaviour change' the only focus? What are the socio-technical conditions that influence this? What forms of structural change are needed?</li> <li>• What new forms of public engagement are needed?</li> <li>• How can we resolve conflicts between different interests and risk perceptions?</li> </ul>  |
| <b>Governance processes including risk assessment, risk modelling and decision making</b>            | <ul style="list-style-type: none"> <li>• What forms of governance, policy and decision-making are needed?</li> <li>• What are practical and relevant solutions for local decision-makers?</li> <li>• What are the most effective/acceptable policy mechanisms and interventions?</li> <li>• How can policy deliberation and collaboration be enhanced?</li> </ul>   |
| <b>Knowledge production</b>  | <ul style="list-style-type: none"> <li>• How can we achieve action when climate models may never be complete or fully accurate? How is 'prediction' understood and practised?</li> <li>• What new forms of technology, and technology transfer, are needed?</li> <li>• How do we foster genuine collaboration amongst social science organisations, policy makers, private corporations and civil society?</li> <li>• How can we incorporate traditional knowledge into strategies for mitigating the effects of climate change?</li> </ul>     |
| <b>Supporting economic transformation</b>  | <ul style="list-style-type: none"> <li>• How are markets changing and how should New Zealand position investment, policy etc. to take advantage of these changes?</li> <li>• How can critical pathways, motivation, for voluntary change and alternative approaches (e.g., regulation) to respond to climate change be identified and invested in?</li> </ul>   |
| <b>The 'birds eye view' – socio-political framings and reframings of climate change</b>              | <ul style="list-style-type: none"> <li>• How do people experience 'climate change' in everyday life?</li> <li>• How is climate change approached through indigenous knowledge?</li> <li>• What does the crisis over climate change indicate in terms of larger scale dynamics around industrialisation, globalisation, and sustainability?</li> <li>• Is adaptation about maintaining 'business as usual', or a different future?</li> <li>• What new partnerships between governments, citizens, industry and science are possible?</li> </ul> |

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# Appendix

**Table 1.** Social science-related entry points for the Working Group II and III contributions to the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report identified by Dr Andy Reisinger (NZAGRC) in his presentation at the *Degrees of Possibility* workshop 6 December 2010.

| <b>WORKING GROUP II (Impacts, Adaptation, and Vulnerability)</b>   | <b>WORKING GROUP III (Mitigation of Climate Change)</b>  |
|--|--|
| <p><b>SECTION: Adaptation</b></p> <p><b>Chapter 14. Adaptation Needs and Options</b></p> <ul style="list-style-type: none"> <li>• Synthesis of adaptation needs and options</li> <li>• International, national, and sectoral assessments, including National Adaptation Programmes of Action (NAPAs)</li> <li>• Measuring adaptation</li> <li>• Addressing maladaptation</li> </ul> <p><b>Chapter 15. Adaptation Planning and Implementation</b></p> <ul style="list-style-type: none"> <li>• Local, national, regional, and global strategies, policies, and initiatives</li> <li>• Technology development, transfer, and diffusion</li> <li>• Financing for adaptation</li> <li>• Insurance and social protection</li> <li>• Knowledge sharing, learning, and capacity building</li> <li>• Institutional arrangements: public- and private-sector stakeholders and priorities</li> <li>• Links between adaptation and development</li> <li>• Decision support tools and methods</li> <li>• Adaptation status and indicators</li> </ul> <p><b>Chapter 16. Adaptation Opportunities, Constraints, and Limits</b></p> <ul style="list-style-type: none"> <li>• Cross-sectoral synthesis</li> <li>• Limits to adaptation, including ethical dimensions and resources</li> <li>• Interactions among limits</li> <li>• Effects of alternative mitigation pathways on adaptation</li> <li>• Ancillary social and ecological effects of adaptation</li> </ul> <p><b>Chapter 17. Economics of Adaptation</b></p> <ul style="list-style-type: none"> <li>• Adaptation costs and benefits at global, national, sectoral, and local levels</li> <li>• Inter-relationships between adaptation costs and residual damage</li> <li>• Economic instruments to provide incentives</li> <li>• Using market-based approaches for adaptation decision-making</li> <li>• Ancillary economic effects</li> </ul> <p><b>SECTION: Multi-sector Impacts, Risks, Vulnerabilities, and Opportunities</b></p> <p><b>Chapter 20. Climate-resilient Pathways: Adaptation, Mitigation, and Sustainable Development</b></p> <ul style="list-style-type: none"> <li>• Multi-metric valuation</li> <li>• Ecosystem services and biodiversity threats</li> <li>• Consumption patterns, lifestyles, behaviour, culture, education, and awareness</li> <li>• Human well-being</li> <li>• Adaptation, mitigation, and sustainable development, including tradeoffs and co-benefits</li> </ul> | <p><b>SECTION: Framing Issues</b></p> <p><b>Chapter 2. Integrated Risk and Uncertainty Assessment of Climate Change Response Policies</b></p> <ul style="list-style-type: none"> <li>• Risk perception</li> <li>• Risk and uncertainty in climate change</li> <li>• Metrics of uncertainty and risk</li> <li>• Managing uncertainty, risk and learning</li> <li>• Tools for analyzing uncertainty and risk</li> <li>• Frequently asked questions</li> </ul> <p><b>Chapter 3. Social, Economic and Ethical Concepts and Methods</b></p> <ul style="list-style-type: none"> <li>• Assessing methods of policy choice</li> <li>• Ethical and socio-economic principles</li> <li>• Metrics of costs and benefits</li> <li>• Economics, rights and duties</li> <li>• Justice, equity and responsibility</li> <li>• Behavioural economics and culture</li> <li>• Policy instruments and regulation</li> <li>• Technological change</li> <li>• Frequently asked questions</li> </ul> <p><b>SECTION: Pathways for Mitigating Climate Change</b></p> <p><b>Chapter 5. Drivers, Trends and Mitigation</b></p> <ul style="list-style-type: none"> <li>• Global trends in stocks and flows of greenhouse gases and short-lived species</li> <li>• Key drivers of global change</li> <li>• Production, consumption and trade patterns</li> <li>• Contribution of technological change to mitigation</li> <li>• Contribution of behavioural change to mitigation</li> <li>• Co-benefits and tradeoffs of mitigation including air pollution</li> <li>• Carbon and radiation management and other geo-engineering options, including environmental risks</li> <li>• The system perspective: linking sectors, technologies and consumption patterns</li> <li>• Frequently asked questions</li> </ul> <p><b>Chapter 6. Assessing Transformation Pathways</b></p> <ul style="list-style-type: none"> <li>• Tools of analysis</li> <li>• Climate stabilization: Concepts, costs and implications for the macro-economy, sectors and technology portfolios, taking into account differences across regions</li> <li>• Integrating long- and short-term perspectives</li> <li>• Integrating technological and societal change</li> <li>• Sustainable development and transformation pathways, taking into account differences across regions</li> <li>• Risks of transformation pathways</li> <li>• Integrating sector analyses and transformation scenarios</li> <li>• Frequently asked questions</li> </ul> |

# Workshop Contributors

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## **Workshop Convenor**

Karen Cronin ESR

## **Workshop Organising Committee**

Karen Cronin ESR  
Brendan Doody GNS Science  
Alison Greenaway Manaaki Whenua Landcare Research  
Richard Nottage NIWA & NZCCC Coordinator  
David Wratt NIWA & NZCCC Director

## **Additional Workshop Programme Advisors**

Zuleika Chang UNESCO New Zealand  
Richard Le Heron Royal Society of New Zealand/University of Auckland  
Amanda Wolf Victoria University of Wellington

## **Workshop Scoping Group<sup>8</sup>**

Richard Bedford University of Waikato  
David Johnston GNS Science/Massey University  
Judy Lawrence NZCCRI Victoria University of Wellington  
Nick Lewis University of Auckland  
Martin Manning NZCCRI Victoria University of Wellington  
Glenn McGregor University of Auckland  
Louise Munro MoRST (He Waka Tāngata)  
Eric Pyle MoRST  
David Thorns University of Canterbury

## **Workshop Breakout Group Facilitators**

Julia Becker GNS Science  
Janet Bornman IGCC University of Waikato  
Karen Cronin ESR  
Brendan Doody GNS Science  
Alison Greenaway Manaaki Whenua Landcare Research  
Dave Moore Scion  
Louise Munro MoRST (He Waka Tāngata)  
Trecia Smith Ministry of Agriculture & Forestry  
Vicki Soanes UNESCO New Zealand  
David Wratt NIWA

<sup>8</sup> In addition to organising committee and workshop programme advisors.

# Workshop Programme

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## Monday 6 December 2010

8:00 am Arrival & Registration

9:00 am Opening Session

Chair: Dr David Wratt

Chief Scientist, NIWA

Director, New Zealand Climate Change Centre (NZCCC)

Karakia & Mihi Whakataua

Mr Weno Iti

Manager - Te Kūwaha, NIWA

9:10 am Welcome & Introduction

Dr David Wratt

9:15 am Workshop overview & logistics

Dr Karen Cronin

Science Leader (Science, Technology and Society), ESR

9:25 am Session 1 - Plenary (Framing Issues)

Chair: Dr Karen Cronin

Sir Peter Gluckman

Prime Minister's Chief Science Advisor

9:40 am Q & A with Sir Peter

9:55 am Introduction of Prof Elizabeth Shove  
(via video-link from United Kingdom)

10:00 am Beyond the ABC: How social science can help climate change policy

Prof Elizabeth Shove

Department of Sociology, Lancaster University, United Kingdom

10:30 am Q & A with Elizabeth

10:40 am Doing things differently: Indigenous peoples and climate change

Dr Maria Bargh

Te Kawa a Māui - School of Māori Studies

Victoria University of Wellington

11:00 am Q & A with Maria

11:10 am Morning tea

11:40 am Session 2 - Breakout Groups (Questions)

Chair: Dr Karen Cronin

Overview of breakout session structure

Dr Karen Cronin

11:50 am Form discussion groups & introduction of group members

12:00 pm Introductory discussion

Question 1:

What have you read or heard recently which stimulated your thinking in regards to climate change and society.

12:30 pm Constructing social knowledge around climate change

Question 2:

What insights can social science offer to provide greater understanding of climate change issues and climate action?

1:00 pm Lunch – Whitby's Restaurant (17<sup>th</sup> Floor)

2:00 pm Session 3 - Plenary & Breakout

Chair: Dr Karen Cronin

International climate change research & policy processes

Dr Andy Reisinger

Deputy Director (International)

New Zealand Agricultural Greenhouse Gas Research Centre

2:25 pm Q & A with Andy

2:35 pm Reconvene in discussion groups

The contribution of social science

- 
- 2:40 pm **Question 3:**  
Taking into account what we have just heard about the status of climate science internationally, how do you see New Zealand social science contributing to future research at the local, regional and international scale?
- 3:10 pm **Research priorities – work in pairs, with report back to the small group**
- Question 4:**  
If you had the opportunity to develop a New Zealand social science research agenda for climate change what would you list as the top three research questions that need to be addressed?
- 3:40 pm **Capturing potential**
- Question 5:**  
How should the social science research agenda for climate change be progressed?
- 4:10 pm **Afternoon tea**
- 4:30 pm **Session 4 - Weaving Plenary (Synthesis & Close)**
- Chair: Dr David Wratt**
- Weavers report back**
- Dr Matthew Henry**  
Resource and Environmental Planning Programme, Massey University
- Dr Nick Lewis**  
School of Environment, University of Auckland
- Dr Amanda Wolf**  
School of Government, Victoria University of Wellington
- 5:05 pm **Future Pathways**
- Prof Richard Le Heron  
School of Environment, University of Auckland  
Vice President (Social Science and Humanities) Royal Society of New Zealand
- 5:15 pm **Convenor's Summary & Workshop Close**
- Dr Karen Cronin**
- 5:25 pm **Karakia Whakamutunga**
- Mr Weno Iti**
- 5:30 pm **Informal reception – Chancellor 3**
- 7:00 pm **Informal reception close**

## Report Authors



### Dr Karen Cronin

#### ESR

Dr Karen Cronin is a Science Leader (Science, Technology and Society) in the Social Systems Group at Environmental Science and Research (ESR). After working in regional government as a planner, she has held a variety of management roles in social impact assessment, environmental policy and communications at the Ministry for the Environment and later the Environmental Risk Management Authority. Her research interests include science governance and risk communication, particularly the use of dialogue methods to engage science, government, industry and community stakeholders. She was co-founder of the New Zealand Society for Risk Management in 2001 and, with an Australian colleague, recently established the Asia Pacific Science, Technology and Society Network.



### Brendan Doody

#### GNS Science

Brendan Doody has worked as a social scientist at GNS Science since 2008. Before this he completed an interdisciplinary Master of Applied Science at Lincoln University which drew on methods, concepts and theories from geography, sociology and ecology. His main interests include science, technology and society, nature-society relations and everyday knowledges, understandings and practices. He is currently involved in research on energy, residential heating and cooling practices, climate change, natural hazards and new technologies.



### Alison Greenaway

#### Manaaki Whenua Landcare Research

Alison Greenaway has worked as a social scientist with Manaaki Whenua Landcare Research since 2004. She is interested in how knowledge about socio-environmental change is produced in New Zealand. She draws on her training in geography to work with community, industry, research and policy groups on a range of issues of national significance, currently focusing on climate change and urban development.

## Editor



### Richard Nottage

#### New Zealand Climate Change Centre

Richard is responsible for coordinating the activities and outputs of the New Zealand Climate Change Centre, currently based at NIWA Wellington. In 2007 he was employed by the World Meteorological Organisation to work in New Delhi, India, on the 'Synthesis Report' for the Intergovernmental Panel on Climate Change, Fourth Assessment Report. Before this he worked at the Ministry for the Environment.

# Report Contributors

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## Prof. Richard Le Heron

School of Environment,  
University of Auckland

Vice President (Social Science and  
Humanities) Royal Society of New Zealand

Professor Richard Le Heron FRSNZ is an economic geographer who draws on post-structural and political economy insights to enliven his research, teaching and supervision. His research currently focuses on nature-society questions and the development of individual and institutional capacities and capabilities to address policy, industry, community and civil society challenges. He regularly co-supervises transdisciplinary doctoral theses with biophysical scientists from AgResearch, NIWA and Landcare Research. He is co-principal investigator on the Marsden funded 'Biological Economies: Knowing and making new rural value relations' (2010-2012), an AI on the University of Auckland Thematic Research Initiative's project on 'Anchor organizations, sustainability and new forms of leadership in transforming Auckland (2010-2011), and a co-author of the New Zealand Social Science Delegate Report on International Perspectives on Social Science (2010) dealing with opportunities for New Zealand. In recent years Richard has been active in the TEC funded BRCSS (Building Research Capabilities in the Social Sciences) initiative, chair of the International Geographical Union Research Commission on 'The dynamics of economic spaces', and since July 2010 the Royal Society of New Zealand's Vice President (Social Science and Humanities).



## Prof. Janet Bornman

International Global Change Centre  
(IGCC), University of Waikato

Professor Janet F. Bornman is the Director of the International Global Change Centre (IGCC) at the University of Waikato. Janet joined IGCC in mid 2006. She came from the Danish Institute of Agricultural Sciences in Denmark and previously from the Department of Plant Physiology, Lund University, Sweden, where she obtained her PhD. Her research expertise is in the field of plant photobiology and in particular the effects of UV radiation, where these interests arose out of the ozone depletion events of the 1980s to present day concern for the interactions with global climate change. More specifically, her research has centred on plant stress interactions in relation to environmental factors evolving from climate change and common agricultural practices. Janet has served on the UNEP Environmental Effects Assessment Panel (EEAP) since 1991 in the capacity of Secretary, report author and since 2004, as co-Chair. As co-Chair she represents the Panel at the Open-ended Working Group (OEWG) meetings and Meetings of the Parties (MOP) to the Montreal Protocol. Janet was President of the European Society for Photobiology and Editor-in-Chief of the journal, Photochemistry & Photobiological Sciences (PPS), and also has assisted in several programmes within 'Environment, and Sustainable Development' for the European Union.



## Dr Matthew Henry

Resource and Environmental Planning  
Programme, Massey University

Dr Matthew Henry is currently a senior lecturer in the Planning Programme at Massey University. He completed a BREP (Hons) and MPhil (Geography) at Massey University before completing a PhD at Auckland University which explored the historical dimensions of the will to govern in Auckland City. In 2004 he joined the Geography Programme at Massey University and in 2010 shifted to the Planning Programme.

Since arriving at Massey University Dr Henry's work has explored the complex rationalities and implementation of state power in New Zealand as it evolved during the years following World War One. Most recently this work has begun to focus on the intersection of scientific expertise, national development and geopolitics. More specifically this work is exploring the relationship between the discipline of meteorology and its pragmatic sanction of providing infrastructural scientific services to nationally and geopolitically significant activities such as aviation. Of developing interest out this research is the boundary between science and non-science in New Zealand public life, the relationship between scientists and the wider public, and the enrolment of the public into scientific networks and projects such as meteorological data collection.

Alongside this research Dr Henry is involved in the Marsden funded project, Biological Economies: Knowing and making new rural value relations, which is exploring the ongoing transformation of economic value and values in New Zealand's Central Otago and Hawke's Bay regions. Here his specific interest lies in the way in which narratives of crisis – declining prices, debt, climate change etc. – are providing the impetus for the development of new metrologies of value in sectors such as the meat industry.



## Dr Nick Lewis

School of Environment,  
University of Auckland

Nick Lewis is an economic geographer who studies the organisation of collective economic action. He is interested in the creation of value through geographical provenance and place branding; and more generally in how the categories we use to understand the world impact on the ways in which we make our worlds. He has written about the growth of international education in New Zealand, the development of the New Zealand wine industry, social science initiatives in New Zealand, and nation branding. He is currently part of an inter-university research team funded by Marsden to study the making of new value relations in rural New Zealand. Nick is a member of He Waka Tāngata, Chair of the Auckland Branch of the New Zealand Geographical Society, and co-Director of the BRCSS network (Building Research Capability in the Social Sciences).

## Workshop Speakers



**Dr Amanda Wolf**  
School of Government,  
Victoria University of Wellington

Amanda Wolf is Director, Graduate Research Programmes in the School of Government, Victoria University of Wellington. She holds degrees in philosophy (Boston College) and policy studies (University of Maryland). Her research interests include methodologies for policy research; interdisciplinary research and teaching; the use of knowledge and information in policy analysis; subjectivity and 'common sense' in research and policy analysis; and applications to environmental, social and food policy topics. Before moving to New Zealand, Amanda worked in the seafood industry and researched food policy and food security (International Food Policy Research Institute, Washington DC) and international environmental negotiations (International Institute for Applied Systems Analysis, Laxenburg, Austria). She is a founding member of Building Research Capability in the Social Sciences (BRCSS), and a member of its management group.

Amanda's longstanding interest in the interfaces between public perceptions, attitudes, values and experiences on the one hand and policy and regulation on the other has stoked her fascination with innovative social science methodologies. She is a leading scholar in the field of Q methodology, an approach to eliciting and understanding competing discourses and people's 'situatedness' in the universe of all views on a given situation. She is Editor-in-chief of *Operant Subjectivity: the International Journal of Q Methodology*. She has authored two books: *The policy implications of diversity* (with J. Boston & P. Callister) and *Quotas in international environmental agreements*. Her current work extends into the theory and practice for integrating expertise and experience, learning from practice in complex policy contexts, and persuasion in policy.



**Prof. Sir Peter Gluckman**  
Prime Ministers Chief Science Advisor

Professor Sir Peter Gluckman was the founding Director of the Liggins Institute and is one of New Zealand's best known scientists.

His research has won him numerous awards and international recognition including Fellowship of the Commonwealth's most prestigious scientific organisation, The Royal Society (London). He is the only New Zealander elected to the Institute of Medicine of the National Academy of Sciences (USA) and the Academy of Medical Sciences of Great Britain.

In 2009 he became a Knight of the New Zealand Order of Merit replacing the 2008 Distinguished Companion of the New Zealand Order of Merit, for services to medicine and having previously been made a Companion of the Order in 1997. In 2001 he received New Zealand's top science award, the Rutherford Medal. In July 2009 he was appointed as the first Chief Science Advisor to the Prime Minister of New Zealand.

Professor Sir Gluckman is an international advocate for science, promoting the translation of discoveries in biomedical research into improvements in long term health outcomes. He is the author of over 500 scientific papers and reviews and editor of eight books, including three influential textbooks in his subject area.



**Prof. Elizabeth Shove**  
Department of Sociology, Lancaster  
University, United Kingdom

Elizabeth Shove is professor of sociology at Lancaster University in the United Kingdom. She currently holds an Economic and Social Research Council Climate Change Leadership Fellowship on 'Transitions in practice: Climate change and everyday life', and is a member of the ESRC/Defra/Scottish Government funded Sustainable Practices Research Group.

Much of Elizabeth's work deals with changing conventions of everyday life and the environmental impact of contemporary interpretations of comfort, cleanliness and convenience. She is interested in exploring the practical relevance of a wide range of social theory, and in particular social theories of practice and transition for climate change policy. Recent articles include "Beyond the ABC: climate change policy and theories of social change" (2010) in *Environment and Planning A*, 42(6), 1273-1285, and "Social Theory and Climate Change: Questions Often, Sometimes and Not Yet Asked" (2010) in *Theory, Culture & Society*, 27(2-3), 277-288.



### Dr Maria Bargh

**Te Kawa a Māui – School of Māori Studies, Victoria University of Wellington**

Maria Bargh (Te Arawa, Ngāti Awa) has PhD in political science and international relations from the Australian National University. She is editor of *Māori and Parliament* (2010) and *Resistance: An Indigenous Response to Neoliberalism* (2007). Her current research examines indigenous peoples in Canada and New Zealand involved in renewable and non-renewable energy projects and is funded by a Marsden Fast Start. She is a lecturer in Māori Studies at Victoria University.



### Dr Andy Reisinger

**New Zealand Agricultural Greenhouse Gas Research Centre**

Andy Reisinger is the deputy director (international) of the New Zealand Agricultural Greenhouse Gas Research Centre. In this role, Andy focuses on the interactions between agriculture and climate change from an international perspective, including coordinating science input to the Global Research Alliance, an international research partnership to increase options to allow increased agricultural productivity without attendant increases in greenhouse gas emissions. He will also act as coordinating lead author for the IPCC's Fifth Assessment Report for the chapter on climate change impacts and adaptation options in Australasia.

Previously Andy was Senior Research Fellow with the New Zealand Climate Change Research Institute in the School of Government, Victoria University of Wellington. His work comprised research on impacts and vulnerability to climate change at the community level in New Zealand, as well as use of climate scenario information for risk assessment and management. His work also included research into alternative metrics for comparing greenhouse gases as part of international agreements.

Earlier positions held by Andy include roles of senior adviser in the Ministry for the Environment and temporarily the Department of Prime Minister and Cabinet under New Zealand's Climate Change Programme, and head of the Technical Support Unit for the production of the Synthesis Report of the IPCC's Fourth Assessment Report.



### Weno Iti

**Te Kūwaha, NIWA**

Weno is from Ngāti Maniapoto and has whakapapa links to most Tainui Iwi, and Te Atiawa. Te Kūwaha is NIWA's Māori environmental research centre. Weno is tasked with organising and running three Te Reo and Tikanga classes a year. Generally these classes are held at marae that are involved in projects with NIWA scientists. Weno is continually working with and supporting NIWA scientists when there is a need to liaise and consult with iwi. Weno has a background in communications, farming and multimedia.

## Director NZCCC



### Dr David Wratt

**NIWA**

David Wratt is the Director of the New Zealand Climate Change Centre, and Chief Scientist (Climate) at the National Institute of Water and Atmospheric Research (NIWA). He is a Vice Chair of the Bureau of Working Group I (the Physical Science Basis) of the Intergovernmental Panel on Climate Change (IPCC).

Dr Wratt was a Coordinating Lead Author for the Australia and New Zealand chapter of the IPCC's Third Assessment Report. He has worked on climate change scenarios and projections, impacts, and adaptation options, and has helped prepare material to assist local government and farmers identify and adapt to the impacts of climate variations and changes. His career also includes research in New Zealand, Australia and the US on atmospheric physics, mountain meteorology, air quality, and applied climatology.





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[www.nzclimatechange.org](http://www.nzclimatechange.org)

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## degrees<sup>of</sup>possibility

igniting social knowledge around climate change

The natural world and the social world are inextricably linked. Our resource intensive and high-carbon lifestyles have produced changes in the Earth's systems and climates. Warming of the climate system has become unequivocal, and the observed increase of global average temperatures since the mid-twentieth century is very likely due to increases in anthropogenic greenhouse gas concentrations. Further and large changes and impacts are expected if greenhouse gas emissions continue at or above current rates. There is growing recognition of the desirability of transitions to more sustainable and low-carbon ways of living, and of learning how to mitigate and adapt to the future risks of changing climates. The many different aspects of society (social processes, institutions, behaviours, cultures, beliefs and practices) which are central to our high-carbon lives are also an important component of future low-carbon lives. The key to successful transformation is social knowledge.

On 6 December 2010 the New Zealand Climate Change Centre organised a one day workshop in Wellington, *Degrees of Possibility: Igniting Social Knowledge around Climate Change*. It brought together social scientists, biophysical scientists, central and local government policy officials, industry representatives, consultants and members of the public to discuss how social science can be related to the broad issue of climate change. This *Workshop Report* summarises the aims of the workshop, and the presentations and discussions that took place. It includes a summary of ideas for social research, and suggests a way forward to integrate social science into the wider research agenda on climate change.

With a foreword from Prof. Richard Le Heron, Vice President (Social Science and Humanities) Royal Society of New Zealand, this report presents a unique New Zealand take on the current state of social knowledge around climate change, the questions that need to be addressed in the future, and processes for engagement and interdisciplinary collaboration. The New Zealand Climate Change Centre hopes that this will be a strong platform for future dialogue between those who are researching, interested in, or administering social science and climate change research and policy.