

Deep South National Science Challenge Engagement Strategy

This paper was written by the Science Lead (Engagement), Dr Rhian Salmon, in consultation with members of the Science Leadership Team and Technical Advisory Committee on Engagement. It was first presented to the DSC Board in December 2015, and updated in November 2016.

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Engagement Strategy: Executive Summary

Climate change will impact New Zealand and New Zealanders in many ways, and good decision-making, from an individual to a national scale, will require knowledge of these expected impacts. Research supported by the Deep South Challenge (DSC) will improve our understanding of climate change science and its impacts on, and implications for, New Zealand over the next 100 years. It will also enhance our ability to make decisions informed by climate change research.

Engagement Goal and Objectives

The goal of the DSC Engagement programme is to contribute to improving New Zealanders' ability and capacity to make decisions informed by DSC-related research.¹ This will be delivered by focusing on six engagement objectives:

1. Ensuring that DSC research responds to the needs of New Zealanders;
2. Strengthening channels with key audiences and sectors with regard to DSC-related climate change research to build sector-specific interest in, and capacity to understand and use, this information to enable more informed decision-making;
3. Establishing broad public communication and two-way engagement about DSC-related climate change research to increase New Zealanders' awareness of, and ability to access and use, DSC research outcomes such that they inform climate-related decisions;
4. Maintaining communication of DSC progress (to the public, key stakeholders, and funders, DSC researchers and committees);
5. Building capability for engagement about climate change among experts and intermediaries (especially related to modelling, impacts and implications, and adaptation), and contributing expertise to engagement led by external partners, to ensure effective communication and dialogue through and beyond the duration of the DSC;
6. Evaluating the DSC engagement programme to ensure that the programme delivers on its goal and contributing to academic literature through research on factors enhancing the effectiveness of climate-change engagement.

Four workstreams have been established to deliver the engagement objectives:

Workstream 1: Tailored Engagement (Objectives 1 & 2)

Target Audience: People who can drive improvements in decision making in key climate-sensitive sectors, including finance, infrastructure and natural resources; marginalised or low-income communities; and sectors where New Zealand's competitive advantage may be eroded.

¹ DSC research includes enhanced modelling capacity, improved predictions of future climate and its impacts and implications, and new understanding of Antarctic and Southern Ocean processes.

Workstream 2: Broad public and internal Engagement (Objectives 3 & 4)

Target Audience: Members of the public who make decisions that could be influenced by an understanding about climate change research. This is a wide scale, which spans individuals who may not currently take climate into consideration in any decisions, to individuals who might use climate data to make a specific decision. (This does not include school-children as a primary target audience but does include family-focused engagement and young adults.)

Workstream 3: Capacity-building for engagement (Objective 5)

Target audience: DSC researchers and other professionals with climate information expertise; stakeholders and thought-leaders who can act as facilitators of engagement and information-sharing with key sectors; and engagement and communication professionals.

Workstream 4: Evaluation and Research (Objective 6)

Target audience: DSC leadership, including Science Leadership Team, Independent Science Panel, and Board; DSC funders, particularly MBIE; and the international research community in public engagement with science and climate change communication.

Implementation of the engagement strategy is the responsibility of the Science Lead (Engagement), in close cooperation with the Science Leadership Team (SLT), the Technical Advisory Committee for Engagement (TACE) and a Representative User Group (RUG).

Key Messages

Key messages of the Deep South Challenge follow. These are aligned with each programme. The selection of these messages, and their framing, will vary for different events, activities, and audiences. Information provided in parentheses is supplementary.

- Climate change is happening
- People need reliable climate information in order to be able to make important decisions about their future [Engagement]
- The main areas of change will be related to more extreme weather events, droughts, shifts in typical weather patterns, and sea level rise [Impacts & Implications]
- Given diverse living arrangements and climate-sensitivities across Māori society, there is a growing need to know more about the specific implications (*includes opportunities and risks*) of a changing climate for iwi/hapū/whānau and Māori business. [Vision Matauranga]
- In order to make more accurate predictions of future climate in New Zealand, we need to develop the New Zealand Earth System Model [Earth System Modelling and Prediction]
- Research in Antarctica and the Southern Ocean is important to better understand key (*high-latitude*) processes (*and to represent them appropriately*) in the New Zealand Earth System Model [Processes and Observations]

Funding

Funding for projects and activities that deliver on the Engagement Programme Goal and Objectives is available through three channels: (i) commissioned work funded directly by the Engagement Programme; (ii) projects proposed by external partners that are funded by the Engagement programme following an application process (see [http://www.deepsouthchallenge.co.nz/for details](http://www.deepsouthchallenge.co.nz/for%20details)); and (iii) through the DSC Contestable funding process (open for projects that deliver on any or several DSC programmes, including Engagement). Funding from the Engagement Programme can be used to support time and costs for development, coordination and reporting/evaluation of an activity.

1. Deep South Challenge Engagement Strategy: Goal and Objectives

1.1 Deep South Challenge Mission and central concepts

The Mission statement for the Deep South Challenge (DSC) is:

This Challenge will enable New Zealanders to adapt, manage risk, and thrive in a changing climate. Working with our communities and industry, we will guide planning and policy to enhance resilience and exploit opportunities. This will be built on improved predictions of future climate, supported by new understanding of Antarctic and Southern Ocean processes. The Challenge will focus on the effects of a changing climate on key climate sensitive economic sectors, infrastructure and natural resources.

This builds on a central concept:

Climate change will impact New Zealand and New Zealanders in many ways, and good decision-making, from an individual to a national scale, will require knowledge of these expected impacts. Research supported by the Deep South Challenge will improve our understanding of climate change science and its impacts on, and implications for, New Zealand over the next 100 years, and enhance our ability to make decisions informed by climate change science.

The Deep South Challenge contributes to all aspects of climate change research from on-the-ground-observations, to modelling the future climate and its potential impacts and implications, to informing decision-making. At the heart of the Challenge is the development of New Zealand's first Earth System Model, which will enable us to make more accurate predictions about the impacts and implications of climate change across New Zealand under different conditions (e.g., different future levels of greenhouse gas emissions) globally and in New Zealand. The Deep South Challenge will use this model and its projections to assist sectors and communities across the country to make better-informed decisions in areas that will be impacted by climate change.

Key concepts within this are:

- Modelling is essential to understand the earth system and predict future climate.
- Climate change is a complex research area. World-class physical science is critical for understanding the earth system and potential impacts and implications of climate change; social sciences are crucial for understanding how these impacts will interface with society; and engagement with individuals and communities across New Zealand is necessary for understanding decision-making needs and processes and assisting New Zealanders to make use of the science.
- Increasing resilience to climate change requires reliable scientific information that responds to the decision-making needs of New Zealanders, made available and accessible through appropriate channels.

1.2 Engagement Strategy Goal and Objectives

The high-level goal of the DSC Engagement programme is to **contribute to improving New Zealanders' ability and capacity to make decisions informed by DSC-related research. This research includes enhanced modelling capacity, improved predictions of future climate and its impacts and implications, and new understanding of Antarctic and Southern Ocean processes.**

This will be delivered by focusing on six objectives:

1. Ensuring that DSC research responds to the needs of New Zealanders
2. Strengthening channels with key audiences and sectors with regard to DSC-related climate change research to build sector-specific interest in, and capacity to understand and use, this information to enable more informed decision-making
3. Establishing broad public communication and two-way engagement about DSC-related climate change research to increase New Zealanders' awareness of, and ability to access and use, DSC research outcomes such that they inform climate-related decisions
4. Maintaining communication of DSC progress (to the public, key stakeholders, and funders, DSC researchers and committees)
5. Building capability for engagement about climate change among experts and intermediaries (especially related to modelling, impacts and implications, and adaptation), and contributing expertise to engagement led by external partners, to ensure effective communication and dialogue through and beyond the duration of the DSC
6. Evaluating the DSC engagement programme to ensure that the programme delivers on its goal and contributing to academic literature through research on factors enhancing the effectiveness of climate-change engagement.

The following table illustrates the range of activities to be undertaken in support of these objectives (described using short titles only – see above for fuller description):

Objectives	Sample activities
1. Ensuring DSC research responds to New Zealanders' needs	<p><i>Active channels for public input:</i></p> <ul style="list-style-type: none"> • Representative user group • Stakeholder workshops and other consultation • Surveys • Feedback associated with engagement activities • Establishing processes among researchers for systematically integrating public input into setting research priorities and modelling scenarios and assumptions
2. Working with key sectors to enable more informed decision-making	<ul style="list-style-type: none"> • Representative user group • Collaboration with adaptation research related to decision-making (e.g., communities of practice) • Development of engagement activities tailored to specific sectors, communities and audiences • Development of resources tailored to specific sectors, communities and audiences • Establishment of linkages with professional associations (e.g., engineers, planners, social workers) • Close collaboration with other key partners involved in engagement about climate change research
3. Public communication and 2-way engagement to help inform climate-related decisions	<p><i>One-way resources:</i></p> <ul style="list-style-type: none"> • Plain-English summaries and fact sheets • Infographics, animations, videos • Website content and information for media • Contribution to newsletters of external partners <p><i>Interactive engagement activities:</i></p> <ul style="list-style-type: none"> • Interactive online tools, social media • Interviews, lectures, conferences • Workshops, meetings, dialogue events (e.g., Science Cafés) • Classroom programmes • Exhibitions, arts and cultural events
4. Providing DSC updates and information	<p><i>External DSC-specific communication:</i></p> <ul style="list-style-type: none"> • Research publications and associated press releases • Regular newsletters and progress reports • Media releases and website updates about the DSC • Researcher and project profiles <p><i>Internal communication and management:</i></p> <ul style="list-style-type: none"> • Management of advisory and representative-user groups • Communication across institutions, programmes and projects
5. Providing training and support in climate change engagement	<ul style="list-style-type: none"> • Training programme for “influencers” across many sectors • Educational, training and presentation materials • Sharing outcomes from CCI • Sharing of information about climate change engagement activity in New Zealand • Participation of DSC researchers in external engagement activities • Peer review of informational materials prepared by other organisations • Collaboration and funding agreements, or sub-contracts, between DSC and external entities
6. Evaluation and research	<ul style="list-style-type: none"> • Data collection related to engagement activities and outcomes

	<ul style="list-style-type: none"> • Surveys/ interviews of researchers, stakeholder representatives and participants in engagement activities • Progress reporting by DSC collaborators and funding recipients • Analysis of results to inform ongoing activity and strategy • Grounding of outcomes in longer research study into effective engagement processes • On-going survey of New Zealand climate change engagement landscape (and DSC contribution to that)
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2. Delivery and Management

2.1 Committees and oversight

Implementation of the engagement strategy is the responsibility of the Science Lead (Engagement), in close conversation with the Science Leadership Team (SLT), the Technical Advisory Committee for Engagement and the Representative User Group.

Representative User Group (RUG) - In response to recommendations from both the Independent Science Panel and the Board in September 2015, a RUG is being established in 2016 in concert with the merge of aspects of the CCII programme into the DSC, and establishment of the I&I programme. The RUG is an advisory body that will provide strategic input to the TACE, Engagement and I&I programmes and broader DSC research.

Key elements of the RUG, as defined in the Terms of Reference (ToR) follow:

“The RUG is an advisory body, the purpose of which is to be a channel to build relationships between decision makers and the DSC. It is not intended to be a governance body. It is a mechanism to help ensure key decision-making groups are informing, and informed by, DSC research. The RUG will provide stakeholder perspectives on research needs and knowledge transfer requirements, as well as guidance on opportunities for collaboration and the alignment of DSC activities with the priorities of the different sectors, systems and groups that make up the wider stakeholder community.”

“The RUG will consist of members who can provide external perspectives and strategic insight, and facilitate engagement and drive improvements, in decision making in the climate-sensitive sectors most affected by extreme weather; drought; sea level rise; and shifts in typical weather patterns.

Proposed membership includes representation from insurance, banking, primary sector, infrastructure, water, local and national government, Māori, treasury, vulnerable communities, and advisors on science and policy.

Technical Advisory Committee on Engagement (TACE) – The role of the TACE is to provide an advisory role to the Engagement Programme Lead. Following overall approval of the strategy by the Board, allocation of funding and support for specific interventions and activities within the programme are recommended by the TACE, and approved by the SLT. This process has been trialled with success in a number of projects, an experience which also informed the *Expression of Intent* process detailed below. The membership of the TACE may

vary according to developing needs, but was established with members with experience in media, public engagement research, local government, business, and Vision Mātauranga. In addition, members from the Implications and Engagement programme, and host organisation (NIWA) communications team join in an ex-officio capacity.

The TACE meets monthly, by videoconference, scheduled to occur between SLT meetings. This enables issues that arise in one forum to be addressed in a timely manner. All major new initiatives, outputs or funding decisions need to be discussed by both TACE and SLT groups except in time-urgent situations, where sign-off from the Director and an appropriate member of the TACE (depending on expertise) is sufficient. These are then ratified at the next SLT and TACE meetings.

2.2 Workstreams

Research carried out from July – November 2015 has identified four workstreams for the Engagement programme to focus on. These workstreams identify areas of coordination that require a particular skill-set. We envisage these workstreams will be coordinated by at least two part-time coordinators, with the exact distribution of work depending on applicants and their capability. The four workstreams are:

1. Tailored Engagement
2. Broad public and internal Engagement
3. Capacity-building for engagement
4. Evaluation and Research.

Workstream 1: Tailored engagement

This workstream will work closely with, and be supplemented by, the emerging I&I programme to ensure key decision-making groups are informing and informed by DSC-related climate change research. It will also help ensure a smooth transition between, and continuity of activities within, the Climate Change Impacts and Implications (CCII) programme and the DSC. (In light of this, the DSC part-funded a series of workshops in September-October 2016, in which CCII shared its outcomes. These included not only the characterisation of biogeophysical impacts and their implications for adaptation, but also identification of key decision-making areas and communication channels.) This workstream will ensure that DSC-relevant CCII outcomes and recommendations can be upscaled to better support decision-making about climate change in key sectors across New Zealand. Central to this workstream will be establishment of close working relationships with other key organisations engaged in similar work that targets “key audiences” to enable more informed decision-making related to climate change research.

Target Audience:

- People who can drive improvements in decision making in key climate-sensitive sectors, including:
 - finance, infrastructure and natural resources
 - marginalised or low-income communities
 - sectors where New Zealand’s competitive advantage may be eroded.

The priority is the sectors most affected by the four climate change impacts focused on by the Impacts & Implications programme: extreme weather; drought; sea level rise; and shifts in typical weather patterns (eg, temperature, rainfall and wind statistics).

Tailored engagement	
Objectives	<ol style="list-style-type: none"> 1. Ensuring that DSC research responds to the needs of New Zealanders 2. Strengthening channels with key audiences and sectors with regard to DSC-relevant climate change research to build sector-specific interest in, and capacity to understand and use, this information to enable more informed decision-making
Activities and approach	<ul style="list-style-type: none"> • Building targeted relationships with key sectors, including primary industries (agriculture, forestry, fisheries), finance, transport, local and regional government, central government, NGOs, active local communities, insurance, energy, transport, healthcare, property, recreation and tourism etc. • Close collaboration with VM programme, and Kahui Māori, on development of appropriate engagement mechanisms with hapu and iwi • Coordination and design of “stakeholder engagement meetings” • Development of targeted initiatives through co-creation processes with identified sectors and representatives • Collecting and recording of DSC research priorities related to climate change decision making, and engaging with the SLT on responding to this information • Coordination and support of the Representative User Group • Ensuring activities across the Engagement programme inform the DSC research priorities • Point of contact for sector-specific enquiries and activities • Regular reporting on process, networks, and opportunities • Ensuring a smooth transition, and strengthening, transition of CCII to DSC programmes • Providing input into capacity building for engagement workstream

Workstream 2: Broad public and internal engagement

This workstream will be responsible for the organising of, partnering with, and development of content for, engagement activities intended for the general public. It will also have responsibility for media and social-media, internal communications processes, TACE coordination, and administering funding processes. Activities covered by this workstream will focus on two-way engagement related to increasing awareness of, and ability to use information that results from, improved predictions of future climate and new understanding of Antarctic and Southern Ocean processes (that will emerge from DSC research). Engagement related to integrated modelling and adaptation will therefore likely be supported, but activities related to climate mitigation or policy are unlikely to be supported. In addition, projects focused on the primary and secondary education sector, and art projects, are only likely to be supported if a clear connection can be made to how they will lead to more informed decision-making about climate change in the near term (e.g., through associated dialogue events).

Target Audience:

Members of the public who make decisions that could be influenced by an understanding about climate change research. This is a wide scale, which spans individuals who may not currently take climate into consideration in any decisions, to individuals who might use climate data to make a specific decision. (By this definition, we do not consider that school children are currently in a position to make such decisions, and therefore they are not a primary target audience for the limited engagement budget. This does not however exclude family-focused engagement, or engagement with young adults.)

Broad public and internal engagement	
Objectives	<p>3. Establishing broad public communication and two-way engagement about DSC-relevant climate change research to increase New Zealanders' awareness of, and ability to access and use, DSC research outcomes such that they inform climate-related decisions.</p> <p>4. Maintaining communication of DSC progress (to the public, key stakeholders, and funders, DSC researchers and committees).</p>
Activities and approach	<ul style="list-style-type: none"> • Primary point of contact for the Challenge with regard to engagement • Development of new initiatives and partnerships for public engagement: eg, festivals, public debates, dialogue events, museum exhibits • Creating communications content for the general public, including press releases, content for the website and tools for the media (eg infographics, video, animations, etc.) • Identification of media stories and primary contact to the media, creation of media events • Social media and social media policy • Network building • Liaison with formal and informal education sector & community groups • Coordination and follow-up of TACE meetings • Management of the Eol process • Internal communication and community building within the Challenge • Branding: logos, imagery, templates, etc. • Regular newsletter or website updates about the DSC • Conferences for DSC researchers and associates in 2017 and 2019 • Close collaboration with VM programme, and Kahui Māori, on development of appropriate engagement mechanisms with hapu and iwi

Workstream 3: Capacity building for engagement

The pilot projects and engagement survey both identified a lack of sufficient and appropriate expertise in New Zealand in tailoring and communicating climate change science, and its impacts and implications, for different audiences. This is arguably an area where the DSC can make a significant impact, and is the foundation for development of this workstream. We will seek to co-fund this work through partnership with organisations with shared interests.

This workstream will provide training and support to a range of intermediaries and other community and sector leaders to enable them to communicate more accurately and effectively, and facilitate climate change engagement events and activities across New Zealand. This includes both improving scientists' ability to communicate effectively to various audiences and improving others' (e.g., media, educators, arts community, community and sector leaders) understanding of climate change science and how it interfaces with decision-making.

This workstream will focus on increasing capacity related to facilitating understanding related to climate change models, impacts and implications, adaptation, decision-making, and engagement. It is unlikely to actively lead initiatives focused on mitigation or policy, but may support such activities led by others by, for example, sharing expertise, co-promotion, or development of complementary training activities. During 2017 and 2018, following establishment of the RUG and funding of the second contestable round, this workstream will support and design workshops that improve facilitation skills related to integrating climate change information into decision-making. These will be offered first to DSC researchers and affiliates (for example, members of the RUG and key members in their networks), and then

to external professionals who can demonstrate how this training will lead to delivery of the DSC Engagement Objectives 1-3. In addition, a series of regular workshops and materials will build capacity within the research and engagement community to develop projects that deliver on the DSC engagement objectives.

Target audience:

- DSC researchers and other professionals with climate information expertise
- Stakeholders and thought-leaders who can act as facilitators of engagement and information-sharing with key sectors (identified by the tailored engagement and I&I programmes)
- Engagement and communication professionals, including engagement researchers

Capacity-building for engagement	
Objectives	5. Building capability for engagement among experts and intermediaries, and contributing expertise to engagement led by external partners, to ensure effective communication and dialogue on climate change through and beyond the duration of the DSC.
Activities and approach	<ul style="list-style-type: none"> • Workshops and/ or retreats to enable “influencers” across many sectors to become confident facilitators, communicators, and knowledge-brokers about climate change • Creating accessible resources about climate change research outcomes that are useful for engagement activities, eg, presentation materials, information sheets, handouts, links to reliable resources and latest data • Coordinating participation of DSC researchers in external engagement activities • Workshops and materials to encourage the application of existing engagement expertise to projects that can deliver DSC Engagement objectives • Peer review of informational materials prepared by other organisations • Responding to community demand with regard to training needs

Workstream 4: Evaluation and Research

This workstream will develop and implement an evaluation framework and instruments across the activities undertaken in Workstreams 1-3 in order to monitor and improve their effectiveness in accomplishing Objectives 1-5. The data thus produced will also be analysed and published in the academic literature in order to improve the state of knowledge on climate-change engagement. This will inform broader research into effective climate change communication and engagement. More detail on the Evaluation strategy can be found in the next section.

Target audience:

- DSC leadership, including SLT, ISP, and Board
- DSC funders, particularly MBIE
- international research community in public engagement with science and climate change communication

Evaluation & Research	
Objectives	6. Evaluating the engagement programme to ensure that the programme delivers on its goal; and contributing to academic literature through research on factors enhancing the effectiveness of climate-change engagement
Activities and approach	<p>Activities are likely to include:</p> <ul style="list-style-type: none"> • Interviews with key stakeholders and representatives of end user groups • Interviews with DSC scientists regarding knowledge and utilization of public input • Surveys of engagement-activity participants • Monitoring of conventional and social media • Monitoring of participation rates • Synthesis of results in the context of international research

2.3 Evaluation Strategy

Background, aims and approach

Science outreach and public engagement are seldom subjected to meaningful evaluation. They often lack clearly stated goals; it is assumed that all outreach is good outreach. A paucity of efforts to ‘carefully examin[e] what worked and didn’t work’ (Moser 2010) in outreach on climate change has been widely noted, as has the need to implement a more systematic approach to evaluation (Salmon et al., 2015; Serrao-Neumann et al., 2015).

The aims of evaluation by the Engagement Programme are:

To determine whether engagement activities are achieving the Engagement objectives

To improve the ability of engagement activities to achieve the Engagement objectives

To demonstrate the achievements of the engagement activities and thereby the Engagement Programme

To contribute to knowledge about engagement on climate change

Evaluation is thus closely coupled to the objectives of the Engagement Programme. Organisers of engagement activities are required to explain which objectives their activities will help achieve and how they will do this. The evaluation should primarily determine whether or to what extent this has occurred.

Methods and reporting

Because a large proportion of the engagement activities will be initiated by those outside the Engagement Programme, the precise nature of the activities, and therefore the best approach to evaluating them, cannot be known in advance. However, since the objectives and processes outlined in this document will guide their development and funding, it is possible to make a reasonable projection of the types of activities that will occur. We can therefore indicate the methods that will be used, as well as how they will be used, in a general sense. This is shown in the table below, which pairs likely evaluation methods with Engagement objectives. (Wherever possible, the evaluation of different objectives will be combined into one interview or survey to minimise the number of times a person is interviewed or surveyed.)

The data collected and analysed in the evaluation workstream will provide an important foundation for meeting the Engagement Programme’s Objective 6, by contributing to the

international research literature on: 1/ which factors contribute to the effectiveness of climate-change communication and engagement; and 2/ approaches to and frameworks for evaluating climate-change communication and engagement. Research papers will be the responsibility of the Engagement Programme Leader, the Evaluation Director, and the Quantitative Research Investigator.

The Evaluation Director will report quarterly to the Engagement Programme Leader. These reports will encompass evaluation activity to date and any resulting proposals for changes to the Engagement Programme or particular engagement activities to facilitate meeting the Engagement objectives. A final, summative report will be delivered 3 months after the conclusion of the DSC.

Objectives	Sample activities
1. Ensuring DSC research responds to New Zealanders' needs	<ul style="list-style-type: none"> • Interviews with key stakeholders/users/partners to elicit whether and how their needs were expressed, whether/how they were acted upon, and whether this resulted in more useful information. • Interviews with DSC scientists to elicit whether/how needs were understood, whether/how they were acted upon, obstacles to responding to need <p>(Evaluation surveys of stakeholders/users/partners and other participants in engagement activities can also be used to collect data on needs, which can be fed into DSC science planning.)</p>
2. Working with key sectors to enable more informed decision-making	<ul style="list-style-type: none"> • Interviews with key-sector participants to elicit views on effectiveness of these engagement mechanisms (e.g., representative user group, communities of practice, scenario workshops, etc.) in enabling more informed decision-making. • Documenting activities undertaken by key sectors in response to DSC/EP engagement
3. Public communication and 2-way engagement to help inform climate-related decisions	<ul style="list-style-type: none"> • Collection of quantitative data related to reach of communication, e.g.: media stories, interviews, quotations, citations; website hits; social media reactions and re-posts. • Collection of quantitative data on number and demographics of participants in engagement events • Surveys of participants in engagement events to determine whether specific (DSC/EP-aligned) objectives of the events were achieved • Qualitative questionnaires conducted with selected participants in engagement events to explore whether and how the engagement events achieved (or didn't achieve) their objectives.
4. Providing DSC updates and information	<ul style="list-style-type: none"> • Collection of quantitative data related to reach of DSC updates, e.g.: media stories, interviews, quotations, citations; website hits; social media reactions and re-posts. • Surveys of DSC internal and external partners to assess satisfaction with communication

Objectives	Sample activities
5. Providing training and support in climate change engagement	<ul style="list-style-type: none"> • Collecting data on numbers and affiliations of participants in training programme • Collecting data on participation of DSC scientists in external engagement activities • Surveys of participants in training programme to assess its effectiveness and how it was put to use

Implementation

Dr Joanna Goven has been appointed as the Evaluation Director through Kukupa Research, which has a sub-contract to deliver the Evaluation Programme. Dr Goven will supervise and coordinate evaluation activities, as well as carry out much of the qualitative evaluation. She will be responsible for synthesising evaluation research outcomes and making recommendations to the EP Leader and will report to the EP Leader. Dr Goven has academic expertise in public engagement with science and qualitative research methods, as well as practical experience in implementing and evaluating public engagement.

Dr Gary Steel has been appointed as Quantitative Evaluation Investigator through a sub-contract with Lincoln University. Dr Steel will design, administer, analyse and report on quantitative research to evaluate the effectiveness of engagement activities in meeting the goal and objectives of the DSC Engagement Programme. Design of survey instruments will be undertaken in collaboration with the Evaluation Director. He will report to the Evaluation Director. Dr Steel has expertise in quantitative research methods and social psychology, including psychological aspects of climate-change mitigation and adaptation.

The Partnerships Director and Engagement Coordinator will collect data for the evaluation workstream as part of their existing roles. Ethics approval will be sought through Victoria University of Wellington or Lincoln University.

3. Engagement across and about DSC Programmes

Effective and useful communication about and by the Deep South Challenge relies on internal consistency across all programmes, especially with regard to public-facing key messages and descriptions about how the programmes inter-relate and collaborate. These factors are articulated below.

3.1 Key Messages and descriptions

The five programmes of the Deep South Challenge are summarized as follows. This information is reiterated in the website, infographic, and other communication collateral.

Engagement [E]

Helping New Zealanders to make decisions informed by climate science, and to inform Deep South Challenge research.

Vision Mātauranga [VM]

Strengthening the capacity and capability of iwi/hapū/whānau and Māori business to deal with climate change impacts, risks and adaptation.

Impacts and Implications [I&I]

Understanding the potential impacts and implications of climate change for New Zealand to support planning and decision-making, and aid adaptation efforts.

Earth System Modeling and Predictions [ESMP]

Developing and utilising the New Zealand Earth System Model to produce improved projections of climate change.

Processes and Observations [PO]

Improving our understanding of the global climate system by observing processes in Antarctica, the Southern Ocean, and the atmosphere.

Key messages of the Deep South Challenge, aligned with programmes, are as follows. While these are not listed in any order of priority or importance, the presented order tells a coherent story, with New Zealanders, and the Challenge mission set as the focus. (An equally coherent story could be presented for DSC researchers that starts with the messages related to the physical science research.) The selection and use of these messages, and their framing, will vary for different events, activities, and audiences. Information provided in parentheses is supplementary, depending on the audience (for example, it might be used for clarification for information brokers such as media professionals)

- Climate change is happening
- [E]People need reliable climate information in order to be able to make important decisions about their future
- [I&I]The main areas of change will be related to more extreme weather events, droughts, shifts in typical weather patterns, and sea level rise
- [VM]Given diverse living arrangements and climate-sensitivities across Māori society, there is a growing need to know more about the specific implications (*includes opportunities and risks*) of a changing climate for iwi/hapū/whānau and Māori business.
- [ESMP] In order to make more accurate predictions of future climate in New Zealand, we need to develop the New Zealand Earth System Model (*this requires a supercomputer to perform model simulations and handle the large amounts of data produced by the model*)
- [PO]Research in Antarctica and the Southern Ocean is important to better understand key (*high-latitude*) processes (*and to represent them adequately*) in the New Zealand Earth System Model

3.2 Programme-specific engagement

The Engagement objectives proposed in this strategy were designed to ensure delivery of the Challenge mission, “to enable New Zealanders to adapt, manage, and thrive in a changing climate”. Within this, we also have a mandate to ensure appropriate Engagement related to different programmes. In order to facilitate this, members of the Engagement teams have been identified as key liaisons for programme-specific engagement. These roles, and example activities, are presented below.

Engagement specific to communication of DSC-funded research projects (ie, within Earth System Modeling and Predictions; Processes and Observations; Vision Mātauranga; and Impacts and Implications Programmes)

Engagement liaison: Engagement Coordinator

Example mechanisms for engagement:

- capturing and disseminating research stories through various media – eg, video, blogs, written articles, interviews, social media
- supporting DSC researchers in communication and engagement initiatives
- supporting DSC researchers in professional development in engagement
- “pitching” research stories to mainstream media
- facilitating opportunities for DSC researchers to participate in engagement events
- providing engagement content (eg presentation materials)
- providing engagement products (eg for conferences)
- facilitating appropriate partnerships with external engagement professionals (eg partnership with DSC-supported engagement projects)

Additional Engagement activities and mechanisms specific to supporting Vision Mātauranga and Impacts and Implications at a programme level:

Vision Mātauranga

- Engagement liaison: Engagement Coordinator – point of contact for engagement about VM research projects, and liaison for supporting VM programme lead and Kahui Māori on delivery of appropriate engagement mechanisms with hapu and iwi
- Sandy Morrison, Kahui Māori representative on Technical Advisory Group for Engagement

Example mechanisms for engagement:

- Presentations by VM Programme Lead with targeted audiences (such as the six already delivered in August - October 2016)
- Development of a pan-VM event to profile VM research and share findings and experiences, possibly connected with Māori TV and VM project exhibitons (eg, Huhana Smith’s project)
- Tailored engagement with hapu, iwi and Māori business (e.g. through hui and development of user-specific information) as advised by the VM Programme Leader and the Kahui Māori
- Dissemination, communication, and other support of the engagement component associated with several VM projects (e.g. information sheets, events, workshops, exhibitions, hui, presentations...)
- Encouragement and fostering of engagement proposals that deliver on the engagement objectives, tailored to different Māori needs and aspirations.
- Highlighting stories coming out of VM research (such as the [media coverage following Sandy Morrison’s project](#))

Impacts and Implications

Engagement liaison: Partnerships Director

There is a significant area of overlap between the I & I strategy and the tailored engagement workstream detailed above. Clarification and careful navigation of the respective responsibilities of I & I and Engagement programmes are therefore necessary:

- To prevent duplication of work
- To prevent unintentional undercutting of work
- To enhance information-sharing
- To enhance productive use of resources through coordination
- To prevent uncoordinated targeting of stakeholders

The simplest way to consider the boundary between the programmes is that I&I focuses on “**research on** Impacts and Implications”, and Engagement focuses on “**engagement about** Impacts and Implications”. To illustrate this, it would be appropriate for the I&I programme to develop tools and information inputs that can be used by the Engagement programme in its engagement activities. Examples of I&I research under this definition could include model outputs, empirical estimation of adaptation responses, scenario developments, and research-focused mechanisms to: (a) co-produce knowledge about implications with stakeholders (such as through dialogues and tightly focused research or communities of practice), (b) test the effectiveness of particular methods for attaining stakeholder-related outcomes (such as adaptive pathways, identifying key decision-drivers, identifying change-enablers etc.).

The boundary between the programmes remains, however, a blurry line because some research on Impacts and Implications concerns effective engagement about these issues. We therefore have opted for a collaborative approach to managing this issue, with regular meetings between the two programme teams and clear negotiation and articulation of responsibilities as they arise.

As an example, the following mechanisms for engagement straddle both programmes: establishment of a Partnerships Director, establishment and support of a Representative User group, and support of the DSC Dialogues. Their delivery has been negotiated by the two programmes as follows. We are confident that we can continue to work in this collaborative way, and that the lines of responsibility will become increasingly clear with the progression of both programmes.

The **DSC Partnerships Director** role is key to ensuring strong synergies between the Impacts and Implications Programme and the Engagement Programme. To ensure this, the role is housed within the Engagement team despite being largely funded by the Impacts and Implications programme. Meetings, workshops and conference activities arranged by the DSC Partnerships Director are regularly joined by the I&I Programme Lead and, where appropriate, the DSC Director or members of the Board. Examples include meetings with representatives from the business, insurance, water, banking and primary sectors; representation of the DSC at the climate and business conference (2016); and organization and facilitation of workshops related to I&I targeted research and CCI research outcomes.

Coordination of the **Representative User Group** (RUG), and delivery of associated recommendations, is also a key activity that straddles both programmes. The Partnerships Director will coordinate and provide strategy behind RUG process and management; the I&I

programme lead will provide guidance on RUG composition, key representatives, and networks; the DSC Director will Chair the RUG; and the Programme Leads for both I&I and Engagement (or their representatives) will attend RUG meetings in an ex-officio capacity. Advice from the RUG will inform the research priorities of the I&I programme. The Engagement programme will stimulate public dialogue, and develop associated communication, about the relevance of and need for this research.

The **DSC Dialogues** proposed by the I&I programme (*see separate paper*) will focus on developing research priorities related to specific issues or sectors (for example, insurance). While the I&I programme will identify the topics, facilitate the dialogues, and identify key stakeholders and experts within them, the Engagement programme will create mechanisms for raising awareness about these issues and enable participation in these conversations by a wider network across New Zealand. This may take the form of stories in the mainstream media about the topic and opportunities for deeper dialogue and idea progression through both physical and virtual spaces (eg, social media channels like Loomio).

3.3 Cross-programme linkages

Recommendation 3.1.2 from the Independent Science Panel (February 2016) that the DSC “should further plan and facilitate cross-programme linkages, so that findings from the Engagement activities influence the research plans of the other Programmes, and vice versa”, correlates closely with the first Engagement objective, “Ensuring that DSC research responds to the needs of New Zealanders”. Channels must be purposefully created to ensure feedback and response between programmes. These mainly occur at an SLT level, with new processes being introduced in 2016 that ensure regular reporting between, and response from, programmes. For example, the DSC-funded workshops to report CCII outcomes to participants (September-October 2016) each concluded with a 90 minute session, facilitated by the DSC Engagement team, that focused on information and channels helpful for making informed decisions about climate change. Outcomes and recommendations from these workshops were summarised for the SLT, with each programme lead being asked to articulate the ways in which their programmes could (or could not) respond to the recommendations. Further methods for “closing the information loop” will be implemented in 2017, for example by the DSC Dialogues directly informing the tailored I&I research programme.

4. Funding and funding process

4.1 Budget

The Engagement programme within the Deep South Challenge had \$1.69M allocated, of which \$90k was spent in developmental work. This leaves \$1.6M allocated from January 2016 – June 2019. The total allocation is approximately 7% of the total budget. In a report to the DSC Board (September 2015), the Independent Science Panel (ISP) questioned if this was adequate, given its importance, and noted that a figure closer to 15% of overall investment is recommended in Australian best practice. In acknowledgement, the SLT has identified opportunities for the Engagement programme to explicitly draw on additional funds from the contestable pool as well as co-funding from the I&I programme.

All Engagement proposals submitted through the Contestable process in 2016 were unsuccessful. Although this reflects a prioritisation at that time to fill critical gaps in the DSC research portfolio, examination of the selection process indicates that these proposals were judged both by criteria related to research excellence and by criteria related to delivery of Engagement objectives. This creates additional obstacles that unintentionally bias the Contestable process against Engagement proposals. In light of this, the SLT is proposing a different mechanism for Engagement initiatives to be supported through the contestable round in 2017.

The DSC will also leverage capacity in media and communications from partner institutions at both a programme and project level as part of their alignment with the Challenge. To that end, NIWA is currently supporting the Challenge through web and communications expertise and Antarctica New Zealand is supporting DSC-relevant communications during the Antarctic season (for instance, by profiling DSC research through the visit of Jamie Curry, and supporting a visit by the DSC Board Chair to Antarctica in the 2016-17 season). In addition, Victoria University is providing support from their IT and communications units through promotion of individual events and projects, and by enabling smooth communication channels both within the DSC partners and across the National Science Challenges through use of listserv and videoconferencing technology. In addition, the Universities of Otago and Waikato have collaborated on press releases relevant to DSC projects hosted at their institutions. Further work continues in building this network of DSC communication units.

The budget from 2016-2019 will be distributed into Workstreams, as shown in Figure 1. The tailored engagement workstream and its coordination is also supplemented by the I&I programme. (At their meeting in February 2016, the ISP advised that the exact distribution across these workstreams remain fluid, in order to respond to opportunities and developments during the lifetime of the Challenge.)

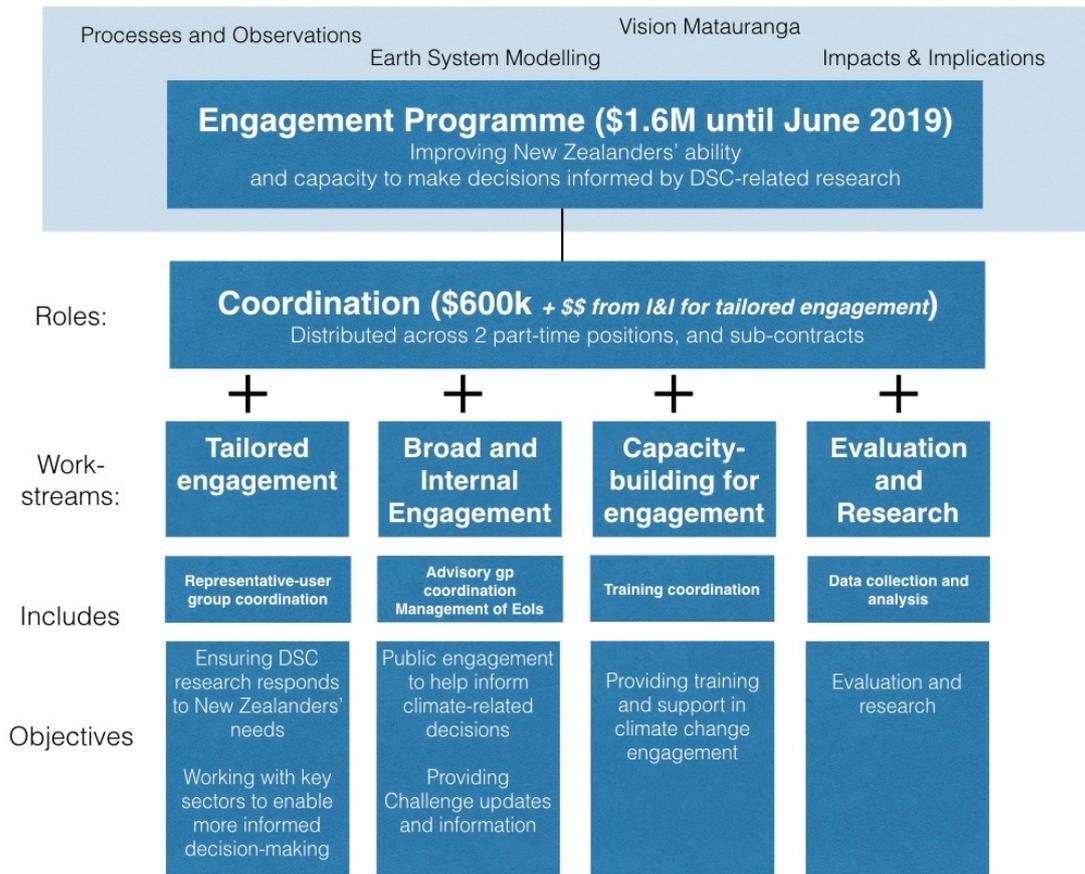


Figure 1: Distribution of Engagement budget by workstreams. The tailored Engagement and Coordination budgets are supplemented by additional funds from I&I.

4.2 Funding process

Funding will be available for projects that contribute to the DSC Engagement Programme objectives through either the Engagement programme directly, or the DSC Contestable process. All applications for funding will be encouraged to demonstrate some connection with existing or proposed DSC research, expertise, or outcomes, as well as demonstrate mechanisms to deliver on Engagement objectives.

It is appropriate for these funds to be invested in human resource (time) and costs for development, coordination and reporting. It is also appropriate to cover all costs associated for participation of DSC researchers. It is unlikely, however, that time for DSC researchers to participate in activities will be supported as this is seen as an integral part of dissemination of research, which is included in basic science funding. DSC researchers are not required to participate in such activities as a part of their sub-contracts, but will be invited to do so, with a reasonable limit on their time of 1-5 days per year, depending on their own interest, relevance to their research, and level of institutional support for such activities.

Experience from the case studies identified that it is not realistic to distribute engagement funding annually, but rather a more flexible and responsive process needs to be developed.

External parties are therefore able to apply for support from the funds relevant to the workstreams via an Expression of Intent (Eol) process, which includes TACE recommendation and SLT approval. Applications up to \$3k may be approved at shorter notice, between official funding rounds. Total expenditure will be capped in accordance with the budget to ensure that engagement activities occur across all stages of DSC research and are responsive to new opportunities and partnerships.

Experience running the Eol process through 2016 has demonstrated that applicants either (a) apply for funding based on their own “good idea” that has little relation to the Engagement objectives; or (b) require substantially more than the \$3-8k guidelines initially proposed for this funding stream. In response to this, the resultant “underspend” of the Eol budget, and the lack of Engagement projects funded through the first Contestable round, the upper limit of the Eol process will be raised in 2017 and 2018 to allow for more substantial, longer-term projects and funding of greater human resource. In addition, a series of workshops held throughout 2017, funded from the “capacity building for engagement” workstream, will help to build expertise and capacity to deliver projects that deliver on the Engagement objectives. These will be supported by a parallel Evaluation process supported through the Evaluation workstream.

For larger projects, requesting up to \$300k, external partners are encouraged to apply through the DSC Contestable process detailed elsewhere. These funds are additional to those available through the Engagement programme.

The first Eol forms were made available, and solicited, in conjunction with the release of the Contestable process in February 2016. This was subsequently updated for clarification processes. The application process follows:

1. PI contacts relevant member of the Engagement team to discuss project. If there is a good fit, PI submits short Expression of Intent (Eol). PIs are encouraged to develop their proposal in conversation with DSC partners, including members of the SLT, TACE, Project leads and Engagement workstream coordinators to ensure a good match and increase chances of success.
2. Proposal assessed by TACE, who make **recommendations** to: reject / revise / accept the proposal
3. TACE recommendations go to SLT, who make **final decision** to: reject / revise / accept the proposal
4. PI contacted with information. If accepted, funds released within 3 weeks. If rejected, PI may resubmit updated proposal to future quarterly funding rounds. Projects are typically funded 50/50 upon approval and delivery, respectively.

In cases where a fast response is required, and amounts are under \$3k, documentation should be circulated to both the TACE and SLT, but approval can be granted following approval by, at a minimum, one appropriate member from the Advisory Board and the DSC Director.

Eligibility:

Anyone can apply.

5. Underpinning research

In May 2015, the Board approved initial spending from the Engagement budget on strategy development and associated research. This included pilot projects and development of initial communication products and guidelines, preliminary mapping of the engagement landscape in New Zealand related to climate change, a review of international and national literature and consideration of different approaches to audience segmentation. This was supplemented by new research by Rhian Salmon, Joanna Goven, Catherine Leining, and Michele Fontana as well as ongoing consultation with members of the TACE, SLT and ISP.

5.1 Pilot projects

The literature review revealed a notable lack of papers that document the outcomes of practical interventions and activities in the context of the theoretical basis for engagement practice. For this reason, the pilot projects were especially informative in identification of key areas for future attention.

The following pilot studies and exploratory communications initiatives were used to inform the viability and opportunities within the Engagement programme. These are presented in the below table along with the objectives with which such activities would, in future, be considered or aligned. All of these initiatives included some form of proposal, implementation, feedback and/or debrief. In addition, many proposals were received that were not supported or funded – in many ways this was as useful in informing the strategy as following the progress of those initiatives that were funded since it was helpful for identifying the boundaries of the programme. The majority of the initiatives that were not supported were focused on mitigation, policy, outright sponsorship (rather than partnership), environmental advocacy, and/or support of individuals rather than projects, collaborations or initiatives. Successful proposals focused on two-way engagement, opportunities to receive feedback, activities that could be evaluated and upscaled or reproduced if successful, partnership-building, and/ or development of a DSC “brand”.

Activity	Activity goals	Objective
Climate-KIC Climathon	Partnership with national and international networks, delivery of dialogue event, testing dialogue and feedback	Broad public communication and two-way engagement Ensuring DSC research responds to needs of New Zealanders
Between Two Waves play	Engagement of arts community; exploring boundaries of engagement programme; early publicity; testing evaluation process; early feedback	Broad public communication and two-way engagement Ensuring DSC research responds to needs of New Zealanders

Stakeholder event, Alexandra	Local community dialogue; informing research priorities; engagement with local decision-makers	Strengthening channels with key audiences and sectors Ensuring DSC research responds to needs of New Zealanders
Drama in schools, education pilot	Opportunities to engage with schoolchildren outside the curriculum; partnership-building; funding proposal-development	Broad public communication and two-way engagement
Media Release	DSC-specific engagement, communications material for media and also internal updates Engagement with media	Broad public communication and two-way engagement Maintaining communication of DSC progress
Pan-Challenge engagement day	Collaboration opportunities, internal communication	Maintaining communication of DSC progress
Science partnership on two documentaries	Development of funding opportunities, establishment of partnerships	Broad public communication and two-way engagement
Infographic development	DSC-specific engagement, communications material for intermediaries and internal DSC partners	Broad public communication and two-way engagement Maintaining communication of DSC progress
Collaboration on funding proposals: Cool Science, AI climate data translation	Development of potential co-funding and building new collaborations	Broad public communication and two-way engagement Building capacity for communication

While many learnings and insights emerged from each individual activity, and each also served to create new communications outputs and strengthen new or existing collaborations, they also encountered a number of common obstacles to implementation or full achievement of goals or potential impact. These are described below.

I. Lack of available expertise on climate change science

The main bottleneck in almost every activity, including several where funding was either not required or not an obstacle, was in providing sufficient and appropriate science expertise and partnership. This is arguably an area where the DSC has the most to offer, and certainly a unique feature of the DSC programme. There is therefore a need to extend the capacity and number of people in New Zealand with sufficient and appropriate expertise in tailoring

and communicating climate change science, and its impacts and implications, for different audiences.

Examples: Difficulty finding appropriate speakers for the Climathon opening event and judging panel, the panel discussion after *Between Two Waves*, the Alexandra community dialogue event, and for working with the educators designing the drama activity in schools.

Recommendation: The DSC needs to build capacity in people who have (a) sufficient knowledge of the science of climate change and its impacts and implications for specific communities or sectors; (b) interpersonal skills necessary for sensitive and responsive engagement; and (c) broad insight into the implications of climate change data for decision-making/ relevant information required for navigating a range of decision-making processes. These key speakers and facilitators do not necessarily need to be scientists, but could also be representatives from a range of professions including media, education, policy-making, and sector-specific influencers. This will massively increase the potential for supporting informed decision-making about climate change across New Zealand beyond the lifetime of the DSC.

Response: This is the focus of proposed Workstream 3: Capacity-building for engagement.

II. **Lack of clear and consistent DSC messaging**

All pilot projects required not only logos but also standard text, common messaging, and easy to find information about the Challenge (eg, for introducing speakers and sponsors as well as promotional content). The DSC requires strong, clear, messaging and associated resources that make external communication about the Challenge easy to propagate and as consistent as possible. This includes fundamental marketing products and activities such as making available logos, taglines, key messages, standard text, a colour palette, approved images, etc., as well as establishment of engaging social media networks, strong partnerships, and a reputation for professionalism, delivery and ease of collaboration.

Clear *internal* communication processes and sense of DSC identity and purpose (as well as awareness of research occurring across all DSC programmes) are also central to ensuring consistent and positive external messaging and DSC profile, and strengthening relationships with potential new partners. This includes ensuring transparency and regular updates across both the science community and their institutional representatives, including senior management, research office, and communications staff.

Examples: In addition to logos, standard text, common messaging, and easy to find information about the Challenge, several collaborators asked for information about standard images and colour palette and all media professionals identified the need for a tagline since “Deep South Challenge” is opaque in meaning. Feedback from individual PIs in the Challenge, as well as communications with research office staff from their institutions, identified a lack of transparent intra-Challenge communication. The cross-Challenge engagement day also identified a large gap in expectations and assumptions between the science community and communications professionals involved in all Challenges. On a more positive note, collaboration on funding proposals with both existing and potential new DSC partners, which required a significant investment in time, was found to substantially strengthen relationships and in all cases led to support of new projects and partnerships.

Recommendation: Develop branding guidelines, including logo, taglines, key messages, standard text, a colour palette, and approved images. Establish clear and straightforward process for engagement partnerships. Strengthen internal DSC messaging through regular updates (eg, an e-newsletter), maintenance of an updated website with subscription feature, and increasing accessible resources and information about the Challenge. Establish clear lines of communication and points of contact and agreement on a communications protocol. For researchers, organise internal workshops/conferences and personal contact for key partners with at least one member of the SLT. Remaining open and accessible for new, innovative activities proposed by existing and potential new partners also creates a culture of open communication, and support of partnership opportunities.

Response:

Communication Products: The DSC released an updated website in May 2016, which has associated functions for more frequent News and Updates and an e-newsletter, the [first of which](#) was circulated in September 2016. Future editions are expected to be released every 6-8 weeks. In addition, a [DSC infographic](#) was finalised in February 2016, which has proven to be very helpful for stakeholder engagement.

Communication Branding and Process: During 2015, the DSC developed a branding guideline, a communication protocol for media partners within the DSC, and communication guidelines for DSC researchers. The visual elements (including logos) and taglines developed for the infographic were integrated into the website, a central DSC powerpoint presentation for use by DSC researchers and associates, and other collateral. The branding guidelines were subsequently updated in June 2016, following release by MBIE of branding guidelines for all NSCs.

Communication Messages and Audiences: The infographic and website present short descriptions for each programme, which were further linked to key messages. In addition, articulation of priority audiences and sectors was clarified through establishment of the workstreams.

Communication collaboration: A meeting (June 2015) for media professionals involved in the DSC and the Sustainable Seas Challenge, dedicated to addressing concerns of communications staff involved with these Challenges, led to development of the DSC communications protocol. In October 2016, a meeting between communications professionals associated with all the NSCs occurred, from which a number of new collaborations have been stimulated. The DSC will provide a channel for these professionals to communicate and meet with each other on a regular basis.

Internal Communication: Workshops for researchers involved in the ESMP/PO programmes, and I&I programme occurred during 2016. Two pan-DSC conferences are planned for 2017 and 2019, with a possibility of programme-specific workshops in 2018 as needed.

Workstream 1: Broad and internal engagement, retains ongoing responsibility for these issues. This includes delivery of regular DSC updates and support of the workshops and conferences.

III. **Need for fast, flexible and consistent response**

The DSC needs to be clear on its engagement boundaries (eg, with regard to mitigation or policy-related activities) and be able to respond quickly to requests for partnership in engagement activities as they arise. While some larger projects may require weeks to months to develop, others that require less funding, or science partnership rather than financial support, require a fast response.

Examples: The Climathon and Alexandra stakeholder event both required a response within a week. In addition, several requests that were rejected (eg, from the Science Media Centre to support a journalist to cover COP 21 in Paris; from Motu to provide seed funding for development of a climate mitigation tool; and from an activist group to support a lecture series) also required a fast response. This is especially important for those initiatives – often suggested by established partners and colleagues – that are unlikely to be funded, or borderline, so that strong relationships are maintained and they are not left “in the dark”. In several cases – including the above examples - any delay in making a decision and responding was directly associated with extended discussions within the TACE and/ or SLT around whether or not it was appropriate for the DSC to support such an activity.

Recommendation: A robust, efficient and clear approval process needs to be developed. This must be supported by a clear statement outlining the goals and objectives of the Engagement programme, and an explicit statement about the kinds of activities that are likely, or unlikely to be supported. (Eg, activities related to mitigation or policy are unlikely to be funded unless they also contribute to other objectives of the DSC Engagement programme; the DSC is more likely to provide support as partners than outright sponsorship; some component of evaluation will be expected). In addition, the funding allocation needs to keep some “reserve” for unexpected opportunities that fit firmly within the DSC Engagement objectives.

Response: The EoI process, managed by Workstream 1: broad and internal engagement, enables a rapid and consistent request, response, and approval processes. The goal and objectives outlined in this strategy provide clarification on the boundaries of appropriate engagement activities. This updated strategy document will be published following Board approval, and a summary of key content posted as an associated item on the DSC website. This will be used as a foundation for clarification of the Engagement Programme objectives with prospective partners.

IV. Importance of relevant and empowering tailored events

Targeted dialogue events need to be relevant, meaningful and empowering for the participants; ie, they need a motivation to contribute and participate, and to see how this event will inform decision-making/ their lives. Partnership on events, a focus on genuine co-production of knowledge, and outlining plans for continuity of progress are key.

Examples: The DSC has supported three stakeholder/dialogue events in 2014 and 2015. The first, in Wellington in November 2014, was designed solely to inform the DSC Research and Business Plan. While the SLT received extremely positive feedback that they were “on the right track” following this consultation, an equally strong message was that of being sensitive to “stakeholder fatigue”, especially since many challenges were in this early consultation phase. There were no clear benefits for the participants of this event beyond shaping the DSC Challenge, and several clearly hoped they wouldn’t be called upon for their expertise too often.

This was in stark contrast to both the Climathon (Wellington, June 2015) and Alexandra event (November 2015), which both involved partnership on coordination and purpose, and included genuine opportunities for coproduction of knowledge. The Climathon led to the development of four robust business plans related to addressing climate change in Wellington, as well as a strengthened engaged community through a series of “collaboration cafes” held over the subsequent four months. The Alexandra event led to a strengthened

local community, new local actions, and presentation of a document with outcomes of the event to local councillors. In both cases, feedback by participants was positive and included a desire to see continuity and progress, and to participate in future, similar events.

Recommendation: Where possible, partner on tailored stakeholder engagement events that lead to genuine co-production outputs. While this may dilute the focus on questions specifically designed to inform DSC research, it will attract a broader community of participants and lead to a more empowered and engaged event.

Response: Workstream 3: Tailored engagement, is responsible for development of appropriate stakeholder engagement processes and activities that are responsive to the needs and priorities of the specific audience, provide mechanisms for co-production and continuity, and ensure that the priorities of New Zealanders inform DSC research. An example of dialogue events facilitated by this workstream are the CCII workshops (September 2016). Outcomes from these workshops were presented in an information paper to the DSC Board that outlines both the feedback received from stakeholders, and the proposed response to this feedback by the SLT.

5.2. Climate Change engagement survey

From 23 October to 6 November 2015, the Engagement Programme distributed a voluntary survey to 374 people spanning 292 organisations representing government, research, business, NGO, education, culture and media, to collect information about current climate change engagement activity in New Zealand. Recipients were encouraged to circulate the invitation further as appropriate. Responses were received from 127 people, some in their personal capacity. A separate report containing the preliminary findings and data will be made publicly available following approval of the respondents.

While the survey's findings should not be considered definitive due to the limitations of the study, a high-level analysis raised the following considerations for the DSC engagement strategy:

1. A broad and diverse array of organisations and individuals serving different constituencies are already conducting climate change engagement activities in New Zealand and overseas and could constitute both target audiences and partners or collaborators for DSC engagement activities. Many survey respondents expressed interest in working with the DSC in some capacity.
2. Current climate change engagement activities can be broadly grouped into three categories: those with a geographic focus, those with a sectoral focus, and those which address cross-cutting issues, capacities or disciplines.
3. Organisations may not define or constrain their climate change engagement activities according to firm distinctions between climate change science; impacts, adaptation and vulnerability; and mitigation. Organisations which have a primary focus on one area of climate change may need information on other areas to provide context for engagement.
4. There is widespread confusion over expectations, implications and the content of events marked "climate change." Even if others conflate mitigation and adaptation, or physical climate impacts and biological climate impacts, the DSC Engagement Programme should set clear parameters around its expertise and involvement.

5. End users of DSC-relevant research would value technical information in forms that can be applied practically to decision making in their specific context. This highlights the need for capacity building, including specialised training, among intermediaries who can help to bridge the information divide between researchers and end users.
6. There is a need for better mechanisms for information sharing, coordination and collaboration across organisations involved in climate change engagement.

Detailed analysis of the outcomes of this survey has been useful for identifying gaps and opportunities in the climate change engagement landscape in New Zealand.

5.3 Literature review

The DSC Engagement strategy involves both “mainstream” public communication activities as well as interventions designed to enable effective and informed decision-making related to climate change. In order to ensure that both aspects were both grounded in international literature and best practice, and also applicable and appropriate for a New Zealand context, a broad literature review was carried out and collated through a shared library. We intend to curate this further and publish it as a public resource, which will itself be a valuable contribution to the DSC Engagement programme outputs.

The following key texts were used to inform the strategy development, several of which are excellent summaries of research to date. (These are included here to both to illustrate the research-grounding on which this strategy was developed, and suggest sources for those interested in further reading.)

International literature:

Bain PG, Milfont TL, Kashima Y, et al. 2015. Co-benefits of addressing climate change can motivate action around the world. *Nature Clim Change*. doi: 10.1038/nclimate2814

Moser, Susanne C. 2014. “Communicating Adaptation to Climate Change: The Art and Science of Public Engagement When Climate Change Comes Home.” *Wiley Interdisciplinary Reviews: Climate Change* 5, no. 3: 337–58. doi:10.1002/wcc.276.

Moser, Susanne C. 2010. “Communicating Climate Change: History, Challenges, Process and Future Directions.” *Wiley Interdisciplinary Reviews: Climate Change* 1 (1): 31–53.

Swart, L, Briedbroek, R, Lourenco, T C. 2014. Science of Adaptation to Climate Change and science for adaptation, *Frontiers in Climate Change* 4 (2) Article29: 1–6.

Wibeck, Victoria. 2014. “Enhancing Learning, Communication and Public Engagement about Climate Change – Some Lessons from Recent Literature.” *Environmental Education Research* 20 (3): 387–411.

New Zealand literature:

Chetty, K, V Devadas, and JS Fleming. 2015. “The Framing of Climate Change in New Zealand Newspapers from June 2009 to June 2010.” *Journal of the Royal Society of New Zealand* 45, no. 1: 1–20. doi:10.1080/03036758.2014.996234.

Evans, L., Milfont, T., & Lawrence, J. 2014. Considering Local Adaptation Increases Willingness to Mitigate. *Global Environmental Change* 25, 69–75.

Hopkins, Debbie, Colin Campbell-Hunt, Lynette Carter, James E. S. Higham, and Chris Rosin. 2015. “Climate Change and Aotearoa New Zealand.” *Wiley Interdisciplinary Reviews: Climate Change* doi:10.1002/wcc.355.

Horizon Research, “New Zealanders’ Climate Change Actions and Attitudes”, prepared for Motu Economic and Public Policy Research and the Sustainable Business Council, Sep 2014

Milfont, Taciano and Petar Milojev. 2015. “Socio-Structural and Psychological Foundations of Climate Change Beliefs.” *New Zealand Journal of Psychology* 44 (1): 17–30.

Moser (2010) provided a useful foundation for exploring the challenges and opportunities for effective public communication about climate change, including questions related to goals, audience, framing, key messages, messengers, channels, and evaluation. Wibek (2014) was particularly useful for situating the goals and outcomes of the case studies, and providing insight into where DSC engagement activities could contribute to research in this field. While there is a growing body of research in the multi-disciplinary field of “Climate Change Communication”, there are still few published studies which present the experiences of translating theoretical best practice in a deliverable programme. We therefore feel that the DSC can make a valuable contribution in this regard. This preliminary research has already led to an invitation to contribute a New Zealand-focused chapter of 7,000 words to an Encyclopaedia of Climate Change Communication (submitted for review, May 2016) that is being compiled by Oxford University; an international symposium on public engagement; and one international and two national and conferences on science communication and public engagement (2015-2016). The literature review and invitations have therefore strengthened our commitment to continuing a research-grounded programme, and to continuing to invest some (relatively small) proportion of the Engagement programme to research, presentation and publication of this broader work.

5.4 Audience segmentation/ stakeholder mapping

Different audiences require distinct frames and messages, which we describe as “tailored communication”. There are, however, many ways that we might separate “New Zealanders” into different target categories. For example, they may be categorised by belief about climate change, by sector, by area of climate change impact, by types of decisions, or by capacity to understand, use and inform DSC research. All of these classifications intersect, producing a very complex picture. Here we outline a number of approaches used elsewhere as well as an approach developed especially for consideration by DSC.

I. Climate Change Beliefs

One common approach has been to segment potential audiences according to their current beliefs about climate change. A recent study by Milfont (2015), based on a representative survey of over 6,000 New Zealanders, reported the following distribution of climate change beliefs: Climate believers (53%); Undecided/Neutral (30%); Climate Skeptics (10%); and Anthropogenic climate skeptics (7%). That is to say, 47% of New Zealanders do not agree with the statement “Most scientists agree that humans are causing climate change”. This does not, however, necessarily mean that they have no concern about climate change; they might just perceive disagreement among scientists. A recent Horizon survey (2015) of 2,200 New Zealanders found that 87% expressed at least some concern about the impact of climate change on society in general, and 84% expressed at least some concern about the impact of climate change on them personally.

Arguably, one of the key DSC audiences defined by this approach to segmentation are the 30% of the population who are undecided/ neutral about anthropogenic climate change. This broad cohort will form some component of those publics targeted by the broad engagement workstream, and through activities led by key intermediaries such as media,

educators and community leaders. Successful approaches to engaging this group may include collaboration with other partners and issues (eg, other NSCs). This builds on research (Bain 2015) that shows that positive framing is critical to effective engagement and behaviour change, for example, focusing on co-benefits of climate change action such as health, stewardship for nature and other local environmental and sustainability issues, rather than on climate change itself. The 53% of the population who are “climate believers” are also an important audience for the DSC as they can be key intermediaries, change leaders, and ambassadors within both their personal and professional communities.

There will also be key sectors (eg, agriculture) whose members may largely belong to the 47% “undecided/neutral” and “skeptical” categories, and who will also be the focus of tailored engagement initiatives due to the sector within which they belong. In order to avoid risk of engaging in a political rather than scientific debate, the DSC does not intend to design targeted engagement activities for any of these specific “climate beliefs”, but will rather design targeted engagement for sectors or communities in which both “believers” and “skeptics” may be found.

II. Other approaches to audience segmentation

It is also possible to categorise “New Zealanders” by sector, climate change impacts, types of decisions, or capacity to use DSC research outputs.

A common approach is to target audiences according to sector. For example: **Government**, including local and regional councils, central government, embassies and other Crown entities; **Economic actors** including specific sectors such as agriculture, forestry, fisheries, finance, tourism, transport, insurance, energy sector, property, healthcare, recreation and tourism, IT, small enterprises, business associations; **Civil society organisations** including iwi, environmental and social NGOs, trade unions, foundations, education associations, young people (next generation), local communities, citizen groups (eg, conservation), climate-focused groups, religious groups; **K-12 education, media, communication and other professional intermediaries** such as schools, museums/ zoos/ aquaria/ reserves, festivals, media professionals and networks, social media, informal education groups, arts communities, science communicators and other facilitators; and **Scientific research**, including other NSCs, Universities, CRIs, overseas research partners, IPCC, WCRP and other science researchers from other disciplines.

Others advocate engagement tailored to areas defined by ecologies, geographies, or infrastructures/services likely to be impacted by climate change in particular ways. For example: Freshwater resources, Terrestrial and freshwater ecosystems, Coastal systems and low-lying areas, Marine systems, Food security and food production systems, Urban infrastructure, Rural infrastructure, Human health, Human security, Livelihoods and poverty.

Related, but still distinct, is an approach that focuses on audiences according to the types of decisions that they (will need to) make. For example: financing/investment, risk management, land use, resource conservation, energy/food/water security, spatial planning, infrastructure development, markets/supply chains, disaster planning/response, healthcare, lifestyle choices, emissions mitigation

Finally, audiences may also be segmented according to their capacity to understand and apply (and/or inform) DSC research. In this case, simply: low, medium, high.

III. Influence vs time

In a recent survey (Archie, unpublished data, 2014), elected officials across New Zealand identified the top three hurdles to adaptation implementation as (1) budget constraints; (2) lack of public awareness of demand to take action; and (3) lack of perceived importance to the public. Further, the top four “most important factors preventing [respondents] from planning for adaptation to climate change” were reported as being a lack of locally specific information, lack of political will, budget constraints, and low community priority. This indicates a need to design engagement activities targeted at “voters” in general, as well as tailored to specific sectors and communities, and provides a foundation for our decision to develop workstreams focused on both “broad” and “tailored” engagement.

The below figure provides a hypothetical illustration of a new approach to audience segmentation, still being refined, in which potential communities and sectors are considered according to their time availability or commitment to the issue (these are combined on one axis because both have the effect of limiting the preparation, including acquisition of knowledge, necessary for successful adaptation) , and their influence per capita. On the left, for example, are actors who may not have significant individual influence on decision-making about climate change, but who can make a substantial contribution collectively – for example, by influencing their local elected officials. On the right, are individuals who have the potential to have greater individual influence, and different degrees of either time for or commitment to climate change issues. We use this primarily to illustrate how the broad and tailored workstreams complement each other, and intersect.

Specific audiences, sectors and communities that the DSC will “target” will become more defined during 2016/2017, in response to analysis of the outcomes from the CCII, closer integration of the CCII into the DSC, and establishment of a representative-user group through the tailored workstream.

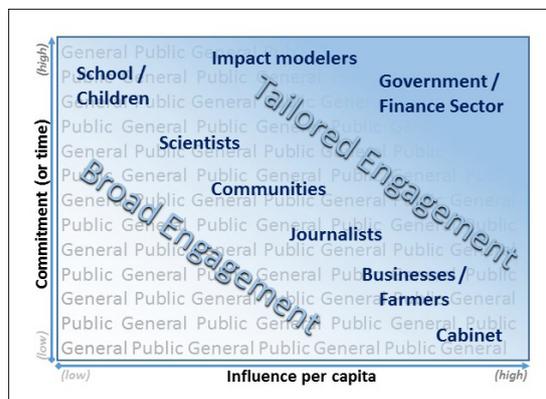


Figure 2: Hypothetical population segmentation in relation to opportunity to influence climate change decisions and time or commitment to the issue

Online Resources

The following are all available for download from

<http://www.deepsouthchallenge.co.nz/resources-and-information>

- **Expression of Intent process and form for Engagement funding**
- **Deep South Challenge communications and branding files**
- **Deep South Challenge Logos**
- **Communications checklist for researchers**
- **Full communications protocol and programme bylines**
- **Deep South Challenge Infographic**
- **Deep South Challenge Word document template**
- **Deep South Challenge Powerpoint template**

These are also available upon request from dsc-engagement@vuw.ac.nz