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A framework for stakeholder engagement on climate adaptation

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EXECUTIVE SUMMARY

This project was designed to inform CSIRO's Climate Adaptation Flagship (CAF) about best practice methods for engaging with stakeholders on the issue of climate adaptation. More specifically, the project had four goals, which were to:

1. Understand what nature and degree of engagement is required by different stakeholders
2. Identify what sorts of information stakeholders need in order to make these decisions
3. Work towards the development of a protocol for modes of engagement
4. Develop a framework for monitoring the success of our communication, engagement and research.

A five-stage process was planned as the best means to address the above goals. Stage 1 was a series of scoping interviews with CAF staff and some key external partners. Stage 2 was a desktop review of existing literature related to stakeholder engagement processes and outcomes. Stage 3 involved two workshops with CSIRO staff with experience in stakeholder engagement. Stage 4 involved interviews with engagement practitioners working outside CSIRO. Results of these first four stages are presented in the current document. Stage 5 is underway, and will involve the application of these findings in two engagement case studies.

Based on the four completed stages, three principle findings can be highlighted:

1. The engagement literature, although fragmented and atheoretical, does provide some fairly consistent guidelines about best practice for all types of stakeholder engagement. These guidelines also are consistent with the practical advice emerging from the workshops and interviews. Together, this information yields a set of recommendations that can be used to guide engagement processes.
2. Climate change and climate adaptation have some features that make engagement on these topics particularly problematic. These features include the presence of misinformation and scepticism about climate change, people's typical reactions to uncertainty, and variations in the capacity for long-term planning, as well as other issues. On the basis of these features and relevant literature, a number of psychological mechanisms have been identified that relate to adaptation engagement.
3. These mechanisms have been combined to develop a preliminary model of adaptation engagement. The model is presented as a pathway of stages, with different drivers and barriers relevant at different stages along the pathway. It is envisaged that the model will help to guide engagement efforts with stakeholder groups at different stages on the pathway. Further, collecting consistent information about existing CAF engagement processes will allow the evaluation and refinement of this model.

Recommendations

The evidence gathered from the first four project stages presents a fairly consistent picture of best practice for climate adaptation engagement, and is summarised in the following recommendations.

Prior to engagement

- **Set goals and plan:** Spend time clarifying what you want to achieve from the engagement process. Ensure adequate and realistic funding (or co-funding) for engagement is available, and be strategic about where/with whom engagement is pursued. Adding a discussion of climate adaptation into existing engagement groups may be an efficient approach.
- **Contextualise the issue:** Consider how to best frame the issue so that it is relevant to the participants. Presenting stakeholders with a practical and locally-relevant problem will draw more attention and foster a greater sense of involvement than asking them to consider a general topic. If such information incorporates projections of local impacts of climate change, it can help promote the sense of vulnerability that may be necessary to motivate behaviour change.
- **Define the stakeholders:** Consider the target constituency carefully, and use a range of local individuals and existing networks to recruit as wide a range of stakeholders as possible. However, no engagement will involve all possible stakeholders: focus attention on those who are most willing and those who are most influential.
- **Manage expectations:** Establish up front where there is potential for participants to influence outcomes and where there is not.

Engagement processes

- **Use group discussion:** It is important to use a range of engagement forums, but group discussion is particularly important to enable the “high quality conversations” which allow people to develop a more complex understanding of the issue at hand.
- **Use varied presentation formats:** Information should be presented in a range of different ways to accommodate the range of learning styles and needs in the community. Complex or difficult information should be presented in plain English and face to face.
- **Allow mutual influence:** Participants should have the opportunity to have input into decisions (as opposed to just being told what to do or just being asked to identify issues).
- **Foster trust, respect and ownership:** Ideally, all parties to the engagement process should trust each other, respect one another’s viewpoint and inputs, and should gain a sense of personal responsibility towards the issue. These features help to increase participant motivation, promote changes in behaviour, and increase external recognition and impact. Having experienced facilitators from a trusted agency to conduct the engagement is extremely useful to help promote these features.

Climate change issues

- **Address gaps in knowledge:** Recognise that lack of understanding and misconceptions about climate change are quite common, and that some engagement will simply involve conveying information. It is also important to recognise that information alone does not provide sufficient impetus to change behaviour.
- **Acknowledge uncertainty:** Be honest about the uncertainty involved in climate prediction, but try to simplify this by identifying what is common to the different scenarios and projections, and by drawing comparisons to uncertainties in other areas. It can be useful to present action in response to climate change as a risk management issue, rather than implying that climate change is "proven".
- **Address scepticism:** Engage intensively with influential members of the community to combat scepticism regarding climate change. Recognise there is little probability that entrenched scepticism can be reversed, however it is important to provide messages that directly address the claims and arguments of sceptical individuals. Discussing the nature of scientific investigation, and discussing previous examples of both scepticism and overreaction brought about by past scientific work may be helpful.
- **Address emotional reactions:** In discussing climate change issues, especially in the process of promoting notions of personal vulnerability, individuals may feel helpless and/or fearful, which can stall or prevent behaviour change. These feelings can be overcome by identifying positive and tangible actions that participants can take, and by encouraging them to focus on being part of a collective response.

Engagement follow-up and evaluation

- **Maintain contact and feedback:** On long-term projects it is important to maintain regular contact with participants. People become cynical about engagement if decision makers do not communicate how participants' input and suggestions were taken into account. Try to ensure that all parties receive something from participation in the engagement process.
- **Plan evaluation from the outset:** Set priorities for outcomes, establish performance metrics, and be mindful of the scale of the targeted change, which influences the nature and degree of evaluation that can be achieved. Collect baseline data so that change can be measured. Ideally, all adaptation projects undertaken by the CAF should draw on a single evaluation framework.
- **Evaluate both process and outcomes:** When evaluating engagement, measure both process (the way in which engagement was done) and outcomes (what was achieved from the engagement process).
- **Acknowledge other impacts:** Accept that any measured changes in the engaged group might have many sources apart from the engagement process. Ideally, invest in a specific methodology for evaluation, to establish an agreed and consistent set of measures for all engagement related to climate adaptation. Consider using separate people to conduct the engagement and the evaluation.

1. INTRODUCTION

1.1 Background

The Climate Adaptation Flagship (CAF) has a goal to better understand the engagement and information preferences of key stakeholders in relation to adaptation to climate change and climate variability. These stakeholders include regional, industry and community groups for which climate adaptation is particularly important, due to their low adaptive capacity and/or high vulnerability to climate change. As the science around the impacts of climate change has become more compelling, there is an urgent need to begin discussion with a broader range of such stakeholders about how they might prepare to adapt to the likely impacts of climate change.

However, with all scientific knowledge there is a degree of uncertainty, and this is particularly true for the impacts of climate change. So the challenge is to help various stakeholders plan for the future while acknowledging the uncertainty inherent in the current climate models. Further, research already conducted by CSIRO has found that when stakeholders are engaged in discussions about climate change, they can become alarmed, fearful, and concerned about their future before moving onto identifying possible solutions. Such findings highlight the importance of engaging stakeholders in an appropriate manner to ensure that interactions are positive and enabling rather than the opposite.

Given the points above, early research by the CAF to accurately scope a program of engagement for various Australian stakeholders on adaptation is crucial, and can assist other partners active in promoting adaptation. We know that different stakeholder groups will have varying needs for levels of information, potential solutions and preferred strategies for implementation to achieve those solutions. Extensive work on stakeholder engagement, both in relation to climate and other areas, has already been conducted by researchers both within and outside CSIRO, at a national and international level. The aim of this project, then, is to systematically gather existing knowledge on engagement, apply it in a climate adaptation context, and evaluate its outcomes.

1.2 Project goals

Overall, this project was designed to systematise our understanding of the engagement preferences of key stakeholders with regard to climate change adaptation. This will help to inform the efforts of the CAF in delivering a national research program with a strong emphasis on engagement, and will enable the development of common standards in this area. More specifically, the research aimed to address four goals, which were to:

1. Understand what nature and degree of engagement is required by different stakeholders from the CAF in order for them to make better decisions about adaptation or transformation in the context of their own values.

- Addressing this goal requires us to first define what constitutes “better” decisions – part of this notion revolves around having confidence in the scientific information presented.
- It also requires us to understand the diversity of values that drive decisions by different stakeholders, particularly those requiring metrics other than economic impact.

2. Identify what sorts of information stakeholders need in order to make these decisions.

   - It is noted that different contexts and different groups of stakeholders will require and prefer various sorts of information.
   - This goal should also identify how the information is most usefully presented, and include issues related to simplicity of presentation and methods of conveying uncertainty.
   - There is also a need to identify the “trigger points” for action to be taken, i.e. when do engagement and information translate into behaviour?

3. Work towards the development of a protocol for modes of engagement

   - This protocol needs to enhance the quality and utility of the research undertaken, via building trust and/or better eliciting wider knowledge and perspectives, especially in new engagement processes, noting that one size will not necessarily fit all.

4. Develop a framework for monitoring the success of our communication, engagement and research.

   - Centrally, this framework will require some form of ongoing interaction with engaged stakeholders.

1.3 Methods

A five-stage process was designed to address the above goals.

Stage 1 was a series of scoping interviews with CAF staff and some key external partners, designed to ensure that the goals of this project were appropriate, comprehensive and acceptable. The nine interviewees included CSIRO staff from Sustainable Ecosystems and Marine and Atmospheric Research, and also representatives from the Department of Climate Change and the National Climate Change Adaptation Research Facility.

Stage 2 was a desktop review, designed to gather and synthesise existing literature related to stakeholder engagement processes and outcomes, and identify current research that is taking place around adaptation engagement both in Australia and internationally. The review highlighted a number of issues relating to engagement processes and evaluation, as well as specific issues relating to engagement on climate adaptation.

Stage 3 involved two workshops held with CSIRO staff members who have worked in stakeholder engagement, including a number with experience specific to climate-related engagement. Two workshops (one in Aspendale and one in Brisbane) were conducted to discuss and record ideas and experiences relating to engagement processes. A total of 28 CSIRO staff from a wide variety of divisions and locations participated in the workshops.

Stage 4 was a series of interviews with nine people from outside CSIRO, who work in the field of community engagement with a particular focus on climate change or environmental issues. The interviews were designed to provide an external perspective on how best to engage with stakeholders, focusing in particular on challenges and practices that are unique to engagement on climate change and other environmental issues.

Stage 5 involves two stakeholder engagement case studies, designed to (i) apply the knowledge generated from earlier stages about how engagement should be conducted, and (ii) assess the outcomes of the engagement process. This stage is currently searching for suitable case studies.

Detailed information collected at each of the four completed stages is available from the authors of this report.

2. SUMMARY OF FINDINGS

This section presents a synthesis of major findings and insights drawn from the four completed stages of this project. Firstly, general principals of stakeholder engagement are discussed, followed by a description of stakeholders relevant to climate adaptation, and a discussion of issues for engagement that emerge specifically for climate change and climate adaptation. The section concludes with an initial discussion of a protocol for the practice of engagement in relation to climate adaptation.

2.1 General principles of engagement

2.1.1 Definitions

The term “stakeholder” is used to describe anyone with an interest in a particular decision. This interest can stem from the potential to influence the decision, and/or from the potential to be influenced by the decision. Stakeholders can act as individuals or as representatives of a larger group.

The term “stakeholder engagement” is used to describe any process that involves stakeholders in some form of collaborative effort directed towards a decision, which might involve future planning and/or behaviour change. The extent of this collaboration can vary from fairly brief and simple information provision, to more extensive and long-term relationships amongst participants.

The nature of engagement that is required will depend on the goals that are being pursued. More interactive and deliberative processes are appropriate for issues that are contentious, those that involve risk, and those in which values may differ strongly between different stakeholder groups. Conversely, a simple, uncontentious issue may require only the provision of a fact sheet. In this document, the terms “stakeholder engagement” and “community engagement” are used interchangeably, although the former term is seen as more generic, with “community” reflecting one important type of stakeholder group.

2.1.2 The benefits of engagement

There are multiple benefits derived from involving stakeholders in decision-making. In very general terms, engagement improves the likely outcomes of decision-making. This improvement can operate by:

- Facilitating clear communication and exchange of information, with all parties involved developing a more thorough understanding of issues, potential solutions and alternative perspectives.
- Improving the effectiveness of decision-making processes, by gaining better insight into potential equitable outcomes, solutions to conflicts, and effective planning.

- Strengthening the resources of involved groups, by increasing awareness, confidence, skills and co-operation.
- Improving the sustainability of any initiatives, by increasing the quality of decisions and their acceptance amongst stakeholders.

This list of benefits seems compelling; however the use of engagement is by no means the norm in decision-making processes. There are many reasons for this, but particularly important are the facts that engagement is intensive in time, resource and skill requirements, and engagement involves giving up a degree of control to people beyond the instigating group or organisation, which can threaten the adoption of a preferred outcome.

2.1.3 Principles of effective engagement

The literature on engagement is diverse, complex and in many areas atheoretical and poorly synthesised (see AIHPS, 2007). Nonetheless, some principals do emerge consistently in the literature, and are described briefly below, adapted by or expanded with information that emerged from the interviews and workshops in this project.

- **Scan for current or prior engagement work:** It is important that the context of planned engagement is understood in advance, particularly to identify other previous or current engagement projects. These are important because prior positive experiences can help promote engagement, prior negative experiences can retard engagement, and current activities of other groups can confuse participants or cause mutual interference.
- **Set goals and plan:** Spend time clarifying what you want to achieve from the engagement process. Ensure adequate and realistic funding (or co-funding) for engagement is available, and be strategic about where/with whom engagement is pursued. Adding a discussion of climate adaptation into existing engagement groups may be an efficient approach.
- **Define the stakeholders:** Consider the target constituency carefully, and use a range of local individuals and existing networks to recruit as wide a range of stakeholders as possible. However, no engagement will involve all possible stakeholders: focus attention on those who are most willing and those who are most influential.
- **Manage expectations:** Establish up-front where there is potential for participants to influence outcomes and where there is not. Allowing unrealistic expectations to develop amongst participants is very likely to cause problems later on.
- **Use group discussion:** It is important to use a range of engagement forums, but group discussion is particularly important to enable the “high quality conversations” which allow people to develop a more complex understanding of the issue at hand.
- **Use varied presentation formats:** Information should be presented in a range of different ways to accommodate the range of learning styles and needs in the community. Complex or difficult information should be presented in plain English and face to face.
- **Allow for mutual influence:** Participants should have the opportunity to have input into decisions (as opposed to just being told what to do or just being asked to identify issues).
- **Foster trust, respect and ownership:** Ideally, all parties to the engagement process should trust each other, respect one another’s viewpoint and inputs, and should gain a sense of

personal responsibility towards the issue. These features help to increase participant motivation, promote changes in behaviour, and increase external recognition and impact. Having experienced facilitators from a trusted agency to conduct the engagement is extremely useful to help promote these features.

- **Maintain contact and feedback:** On long-term projects it is important to maintain regular contact with participants. People become cynical about engagement if decision makers do not communicate how participants' input and suggestions were taken into account. Try to ensure that all parties receive something from participation in the engagement process.

Finally, engagement should be systematically evaluated. Evaluation of engagement is discussed in more detail in the following section.

2.1.4 Evaluating engagement

Engagement processes, however well designed and presented, cannot be assumed to have been effective. Because of the complexity of processes used, the variety of contextual factors involved, and the number of different interests in play, the overall success or effectiveness of specific engagement processes can vary markedly from original expectations. Planned, detailed and ongoing measurement of the processes, outputs and outcomes of engagement enables process to be adjusted as needed, and provides valuable feedback for the development of future engagement.

A number of issues can be highlighted with respect to the evaluation of engagement:

1. Evaluation is an integral part of engagement, and should be designed and conducted with reference to the participants, goals, mechanisms and time frames of the broader engagement process.

2. Evaluation must be structured and planned in advance. Evaluations should be based on clear performance criteria, and should apply systematic procedures to gather trustworthy evidence. Ideally, measures should be taken at the beginning of engagement, to allow a baseline for comparison of later measurements.

3. Evaluation is challenging. It can be difficult to identify appropriate metrics, to maintain measurement over an extended period, and to establish a causal link between engagement processes and measured outcomes. Measures of both engagement processes and engagement outcomes are valuable. The former are easier to gather and help inform subsequent aspects of the same engagement process. The latter are more difficult to measure, but provide more convincing evidence of impact.

Ideally, all adaptation projects undertaken by the CAF should draw on a single evaluation framework, to aid in maintaining consistency of process and content of evaluation data, and to promote the development of a cohesive body of knowledge about the effectiveness of the engagement that is conducted.

2.2 Identifying stakeholders for climate adaptation

In very general terms, the stakeholders relevant to issues of climate adaptation are those within systems (regions, industries, or communities) that are particularly vulnerable to the potential impacts of climate change. A useful working definition of vulnerability can be built by first defining its four component parts: exposure, sensitivity, potential impact and adaptive capacity (c.f. Allen Consulting, 2005).

Exposure reflects the extent to which a system is open to influence from climate change and climate variability. Exposure to different impacts is context specific. For example, inland regions are exposed to decreases in rainfall but are not exposed to sea-level rises.

Sensitivity reflects the responsiveness of a system to climate change or climate variability impacts: a more sensitive system will have a larger potential impact in response to the same effect. For example, flat shorelines are highly sensitive to sea-level rise, but steep, rocky shorelines are less sensitive.

Potential impact is a function of a system's exposure to climate change or variability and its sensitivity. Thus, potential impact is highest in systems that are both exposed and sensitive. For example, flat beaches are both exposed to sea-level rise and sensitive to it, so they will suffer a high potential impact from any sea-level rise that occurs.

Adaptive capacity refers to a system's capability to respond effectively to manage the potential impacts of climate change and climate variability. Broadly, adaptive capacity reflects the human, social and technological capital of a system: the more resources in these areas that are available to a system, the greater its capacity to reduce, prevent or more quickly recover from a negative impact of climate change or climate variability. For example, a flat beach in a developed country can be considered to have more adaptive capacity to deal with sea-level rise than a similar beach in a developing nation, where resources are unlikely to be available to build sea walls, adjust building designs or to plan a staged withdrawal to higher ground.

Vulnerability, then, is a function of potential impact and adaptive capacity – systems that have lower potential impact from changes to climate and climate variability, and/or those that have higher adaptive capacity, are considered less vulnerable to climate change. Conversely, systems with higher potential impact and/or lower adaptive capacity are considered to be more vulnerable to climate change.

Identification of systems that are particularly vulnerable to climate change is a complex problem, given that:

1. There are multiple different climate changes that may be relevant (e.g. sea-level rise, increased storm surges, increased bushfire risk, changes in rainfall extent and timing, etc).

2. Assessing adaptive capacity is itself problematic, since it requires an assessment of responses to a potential future event, often over a long time scale, involving scenarios for which there are no previous examples available.

Nonetheless, some judgements can be made about the types of systems that are likely to be particularly vulnerable to climate change and climate variability. The Climate Adaptation

Flagship identifies three major groupings of vulnerability: cities and coasts; species and natural ecosystems; and primary industries, enterprises and communities. Expanding these major categories, a more detailed (but still incomplete) list of potentially relevant stakeholders can be identified:

1. Specific communities or regions which are vulnerable on the basis of their location or because of the principal industry that supports them.

2. Federal, state and local governments and associated groups (e.g. local government associations, various government departments and advisory groups).

3. Infrastructure management agencies (responsible for management of ports, air and land transport, water, energy, and property).

4. Industry groups and particular industries, including parks management and natural resource management; construction; health; tourism; agribusiness, forestry and fisheries; insurance and finance; mining; and emergency management.

5. Associations and non-government organisations, including those responsible for the built environment, the natural environment, and those involved with indigenous issues.

2.3 Specific issues for climate-related engagement

Climate change, and especially climate adaptation, represents both an extensive opportunity for engagement and a substantial challenge. In terms of opportunity, there are two features of climate adaptation that make it particularly well-suited to stakeholder engagement.

Firstly, adaptation to climate change is highly contextualised. For example, the adaptation required by a metropolitan coastal community (where increases in sea levels and storm surges will have implications for building codes, infrastructure planning and emergency management) is quite different to the adaptation to climate change required by dairy farmers (where changes in temperature and rainfall will have implications for feed and water supply). No single adaptation approach can work in all different contexts – rather, the adaptation required will vary markedly between different groups of stakeholders, whether these stakeholders represent communities, industries or regional areas. Relatedly, to the extent that climate change predictions are accurate, all adaptation efforts will provide useful local benefit to those undertaking them, by improving capacity to avoid negative impacts, to minimise their effects, or to recover from them more swiftly.

Secondly, adaptation will, in some cases, require substantial changes in local practices. Such changes have a much better chance of being appropriately planned, broadly accepted, and consistently maintained if they originate in a process that involves engagement rather than a “top-down” process where adaptation is imposed from outside without consultation or interaction. While it is acknowledged that some groups will expect an outside agency to provide a solution (see Section 3.4), this will be difficult to achieve without a degree of local input to the process, given the highly contextualised nature of adaptation.

Conversely, there are several features of climate change that make it difficult for people to connect with or respond to. These features present substantial challenges that engagement processes will have to overcome, and include:

1. Climate change is often presented (in the mainstream media) as a serious threat to humanity. It also involves substantial uncertainty (Peterson, 2006), and is perceived as an environmental or "green" issue, and as a "global" problem, with negative impacts that will occur many years in the future, often in distant locations rather than locally (Leiserowitz, 2007).

2. There is a widespread lack of understanding of climate science and climate change projections, and there are extensive misconceptions in the community about the nature, causes and consequences of climate change (McCright, 2007).

3. Further, there is substantial scepticism about climate change, with beliefs that climate change is not real or not extensive, that it is not the result of human activity, and that the proposed responses to climate change are a more substantial risk to society than are the potential impacts of climate change (e.g. Dyson, 2005).

4. Adaptation to the potential impacts of climate change requires a strong focus on long-term, "strategic" thinking, and many people, groups and businesses tend to use much shorter planning horizons and more "tactical" responses (e.g. Milne et al, 2008; Smith, 2001).

In combination, these features of climate change can interact with some aspects of typical human responses to discourage behaviour change in response to climate change (see also Hulme et al, 2007). A number of potential mechanisms can be identified:

- Research indicates that in general, people tend to respond irrationally to information about uncertainty and to information about potential negative outcomes (Arvai, 2008); clearly information about climate change involves both of these considerations, and people may often respond to it in maladaptive ways.
- People's habitual responses are relatively powerful – if forces for behaviour change are not strong enough, they will be overwhelmed by the influence of past behaviour and habit, especially if the goal is long-term behaviour change (Prendergrast, Foley, Menne & Karalis Isaac, 2008).
- Behaviour is strongly affected by social influences. The behaviour and attitudes of family, friends and others can have a strong impact on the decisions and actions of individuals. People have difficulty maintaining an attitude that is different to the typical attitude of those around them (Ajzen & Fishbein, 2005).
- People's processing of new information is strongly influenced by their existing attitudes: attitude-inconsistent information is often disregarded or minimised (Darnton, 2008). In the case of climate change, accurate information about the issue may be ignored if it inconsistent with people's current attitudes, an effect which is particularly important when dealing with climate change scepticism.
- Behaviour change in response to threat requires that people feel personally vulnerable, feel capable of responding, and feel some degree of responsibility for the problem (Moser, 2007). However:

  - People may not feel personally vulnerable to climate change because the effects are not well understood, are perceived to be many years away, or perceived to be global and general rather than local and specific (c.f. Weber, 2006).
  - People may not feel capable of responding to climate change, because the problem is perceived to be too big and/or because a sense of individual agency is blocked by negative emotions of fear or hopelessness. Even those people who feel capable of responding may not know what specific useful action they can take in response.
  - People may not feel personally responsible for climate change (not understanding how their individual behaviours contribute to the larger problem), and/or they may expect outside agencies (typically other countries or the government) to take responsibility for a solution.
- It can be difficult to get representative participation in engagement processes that involve climate change, because the issue tends to attract a specific demographic of "environmentally aware" people, and also tends to deter those with more moderate views from participating.

These considerations can be used to help shape the sort of engagement processes that are used in relation to climate adaptation. In particular some specific recommendations emerge:

- **Contextualise the issue:** Consider how to best frame the issue so that it is relevant to the participants. Presenting stakeholders with a practical and locally-relevant problem will draw more attention and foster a greater sense of involvement than asking them to consider a general topic. If such information incorporates projections of local impacts of climate change, it can help promote the sense of vulnerability that may be necessary to motivate behaviour change.
- **Address gaps in knowledge:** Recognise that lack of understanding and misconceptions about climate change are quite common, and that some engagement will simply involve conveying information. It is also important to recognise that information alone does not provide sufficient impetus to change behaviour.
- **Acknowledge uncertainty:** Be honest about the uncertainty involved in climate prediction, but try to simplify this by identifying what is common to the different scenarios and projections, and by drawing comparisons to uncertainties in other areas. It can be useful to present action in response to climate change as a risk management issue, rather than implying that climate change is "proven".
- **Address scepticism:** Engage intensively with influential members of the community to combat scepticism regarding climate change. Recognise there is little probability that entrenched scepticism can be reversed, however it is important to provide messages that directly address the claims and arguments of sceptical individuals. Discussing the nature of scientific investigation, and discussing previous examples of both scepticism and overreaction brought about by past scientific work may be helpful.
- **Address emotional reactions:** In discussing climate change issues, especially in the process of promoting notions of personal vulnerability, individuals may feel helpless and/or fearful, which can stall or prevent behaviour change. These feelings can be overcome by identifying positive and tangible actions that participants can take, and by encouraging them to focus on being part of a collective response.

2.4 Towards a protocol for engagement on climate adaptation

This section provides a preliminary model of the process of engagement for climate adaptation, and discusses some issues related to the model's further development. The model is presented in Figure 1.

The model was developed based on a number of assumptions and arguments. Firstly, it is assumed that the fundamental aim of engaging with stakeholder groups is for those groups that are vulnerable to take action themselves to plan for climate adaptation. Climate impacts and vulnerabilities to those impacts are both highly context-specific, so a single "correct" adaptation plan, which could be delivered to all vulnerable groups, does not exist. Further, the CAF does not have the capacity to deliver and implement specific adaptation plans to every vulnerable group of stakeholders in Australia, nor would such externally-generated plans be accepted in many cases.

A group's decision to undertake adaptation planning represents the end stage of a pathway or chain of preconditions. In particular, for a group to engage in adaptation planning requires (obviously) a willingness to do so, which in turn requires a sense of responsibility for providing a solution, which in turn is requires a recognition of the problem (in this case the group's own vulnerability to climate change). Recognition of the problem itself requires a clear understanding of climate change issues. Different stakeholder groups will be in different positions along this pathway – the group's position will determine the nature and extent of engagement required in order for the group to progress towards the end point of adaptation planning.

There are a range of drivers that will help promote progress along the pathway.

1. Adaptation planning itself requires a capacity for strategic planning, which is not present in all groups (c.f. Milne et al, 2008). Groups with previous experience in strategic planning, and those with a longer planning horizon, are more likely to be willing to apply this experience in adaptation planning. Where groups do not have such experience, part of the engagement process will require a development of this capacity.

2. A sense of responsibility for finding a solution is more likely in situations where group values and group culture are conducive to taking on such responsibility, and in situations where there is a perception of social support or social influence. For example, a local council is more likely to engage in adaptation planning if they perceive their constituents as expecting them to take action. Engagement processes are unlikely to be able to change pre-existing values or to generate social influence; however they may be able to highlight existing values or increase awareness of existing expectations of interested parties. It is important to note that a fundamental precondition of all engagement is a level of willingness to be involved amongst the stakeholders.

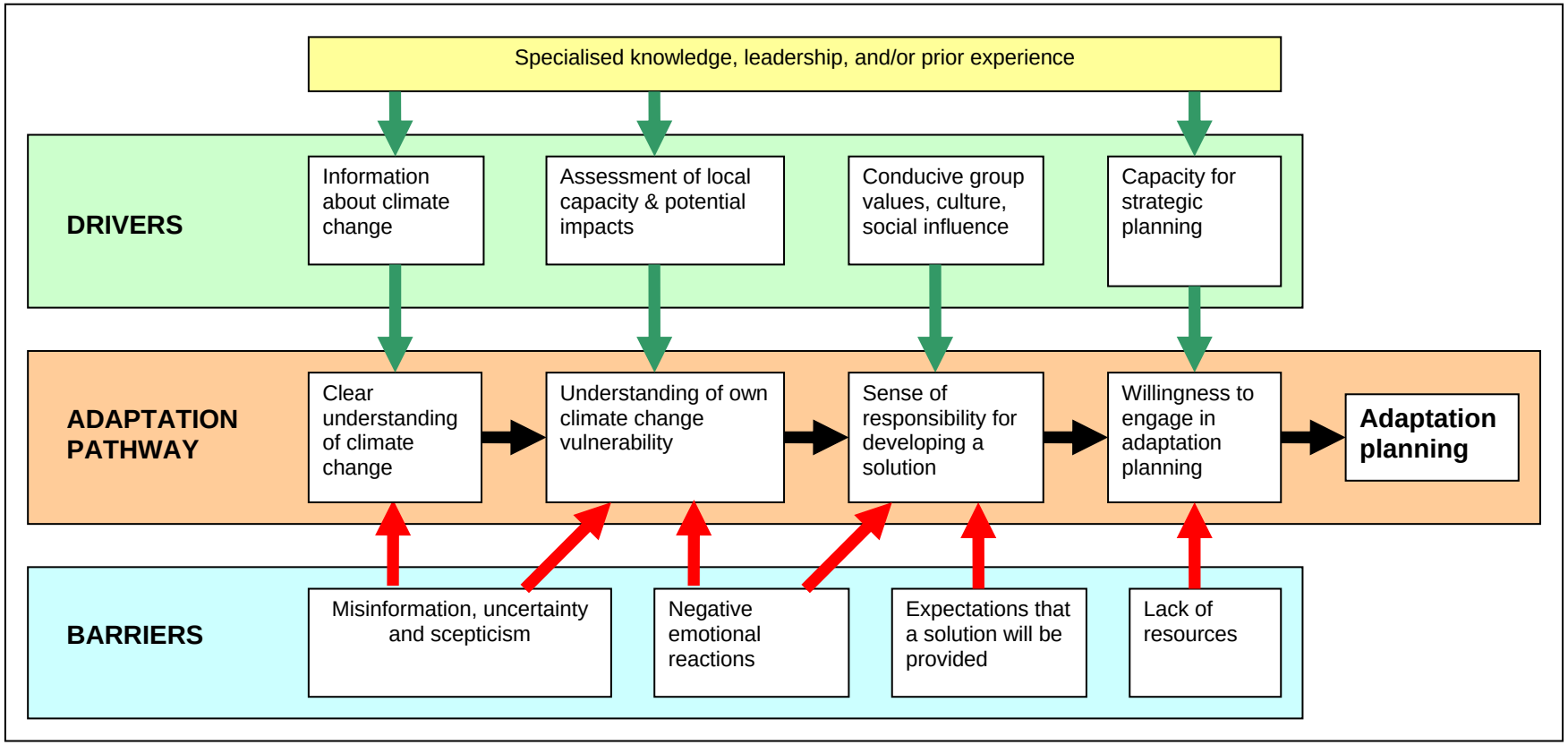

Figure 1. A pathway for adaptation engagement with associated drivers and barriers.

3. For a group to understand the degree and nature of their own vulnerability to climate change, some form of outside expertise is likely to be necessary to provide a formal vulnerability assessment. Not only is such an assessment necessary to form the basis of any effective adaptation plan, it is also necessary to provide an accurate measure of vulnerability, since a group's perceptions of their own vulnerability might be inaccurate. For example, a group of local Sydney councils' perceptions of their own vulnerability showed a low correlation with their actual vulnerability when it was formally assessed (Preston et al, 2008).

4. Finally, for a group to have a clear understanding of climate change, they will, clearly, need access to sufficient information about climate change, tailored in such a way as to meet their needs. Many groups and individuals within CSIRO and the CAF have already been involved in engagement with a wide array of stakeholder groups to provide such information.

There are a range of different barriers that will interfere with effective engagement processes at different points on the pathway. These barriers will need to be addressed within any engagement process that is designed to move a group of stakeholders beyond that point of the pathway.

1. Misinformation, uncertainty and scepticism about climate change are all liable to retard or prevent the development of both an accurate understanding of climate change, and an understanding of a group's own vulnerability. It is also worth noting that as time progresses, the number of people who are sceptical about climate change might be expected to decrease, as future events are attributed to, and accepted as evidence of, climate change, and future research provides additional evidence about the nature and likely consequences of climate change. This effect was particularly evidenced with the wide coverage of the release of the IPCC's fourth assessment report in 2007.

2. Negative emotional reactions of fear and hopelessness can interfere with both the development a sense of responsibility and an understanding of a group's own vulnerability (Moser, 2007). Such emotions need to be acknowledged and addressed within the engagement process.

3. The expectation that an external agency (typically the government) will take responsibility for finding a solution to a group's vulnerability is an important consideration, especially in some contexts. Community groups or organisations that are used to waiting for direction from the federal government are unlikely to suddenly take on responsibility for their own strategic planning and protection; many groups expect and prefer that an outside agency will take on this role on their behalf (Energy Futures Forum, 2006). Further, groups that are engaged by the CAF might realistically expect that the CSIRO will "provide the solution", especially if they have offered other resources like information in the past. It is therefore vital (as has been noted elsewhere) that the expectations of stakeholders are carefully managed throughout any engagement process, so that they recognise where the CAF's role ends and their own responsibility begins. It may be that in some cases, the CAF or another agency does in fact deliver a complete adaptation planning solution to a stakeholder group, but it is presumed that this will not commonly occur.

4. Finally, once a group is willing and capable of adaptation planning, a lack of resources may present a final important barrier to any actual planning. This is not necessarily something that is easily overcome by engagement processes: an organisation may simply have insufficient funding, time or expertise to adequately plan for adaptation. Engagement at this stage in the pathway might be able to explore possible alternative sources of funding or other required resources.

There are also some more general points that can be made about engagement for adaptation planning. Firstly, engaged groups are unlikely to be homogenous: some participants will be extremely sceptical and others will be already convinced; some will be familiar with strategic planning and others will not be. Engagement processes will need to be able to acknowledge and address these likely differences between participants. Since a feature of all effective engagement is the capacity to incorporate different opinions, backgrounds, views and agendas amongst participants, beliefs about climate change and capacity to engage in long-term planning simply form part of the range of diversity that engagement practitioners must incorporate.

Secondly, it is possible to envisage a model pathway that does not require acceptance of anthropogenic climate change as a real threat. If there is a high degree of strategic planning already in place, then the organisation or group only needs to be convinced that some future changes related to climate might occur, and they could be expected to then incorporate this information about future risks into their existing planning processes.

Finally, and more generally, specific types of organisations, groups or communities might be expected to have the specialised knowledge outlined in the model – these organisations would be a relatively "easy sell" in terms of engagement to promote adaptation planning. Groups without this specialised knowledge will require much more in-depth engagement in order to generate the sense of vulnerability, sense of responsibility and capacity for adaptation planning that is required to conduct adaptation planning.

3. CONCLUSIONS

This section presents some general conclusions, as well as an assessment of the extent to which the project so far has addressed its original goals.

Three main conclusions can be drawn. Firstly, the engagement literature, although fragmented and atheoretical, does provide some fairly consistent guidelines about best practice for all types of stakeholder engagement. These guidelines also are consistent with the practical advice emerging from the workshops and interviews. Together, this information yields a set of recommendations that can be used to guide engagement processes.

Secondly, climate change and climate adaptation have some features that make engagement on these topics particularly problematic. These features include the presence of misinformation and scepticism about climate change, people's typical reactions to uncertainty, and variations in the capacity for long-term planning, as well as other issues. On the basis of these features and relevant literature, a number of psychological mechanisms have been identified that relate to adaptation engagement.

Thirdly, these mechanisms have been combined to develop a preliminary model of adaptation engagement. The model is presented as a pathway of stages, with different drivers and barriers relevant at different stages along the pathway. It is envisaged that the model will help to guide engagement efforts with stakeholder groups at different stages on the pathway. Further, collecting consistent information about existing CAF engagement processes will allow the evaluation and refinement of this model.

This project began with four specific goals. The first goal involved "understanding the nature and degree of engagement required by different CAF stakeholders, to help them make better decisions". This goal has been directly addressed by the development of the engagement pathway model, which characterises different drivers and barriers for engagement at different stages of the pathway. It is also noted that not all engagement processes will be successful in this aim; it may be advisable to choose groups for engagement that are already some way along the pathway.

As noted earlier, the model is based on the assumption that all CAF engagement is aimed towards encouraging stakeholder groups to take responsibility for their own adaptation planning. More precisely, "better decisions" have been narrowly defined as those that lead towards the implementation of adaptation planning. It is important to acknowledge that different "better decisions" may exist for some stakeholder groups, so that some engagement may need to be directed towards other aims.

Part of this first goal also noted that it was necessary to "understand the diversity of values that drive decisions by different stakeholders, particularly those requiring metrics other than economic impact". Although the psychological literature has provided some specific guidance about values and other drivers that might be relevant, empirical testing of these proposed mechanisms is necessary to confirm their value in the context of adaptation engagement.

The second project goal involved identifying “what sorts of information stakeholders need in order to make these decisions”. The adaptation pathway model presents some specific guidance towards this end. More specifically a preference for different types of information is determined by a group’s position on the pathway; the most appropriate methods of presenting information are addressed by recommendations about engagement in general, and those about engagement on climate adaptation in particular; and the trigger points for action have specifically been identified within the model, via the necessary preconditions required at each point in the adaptation pathway.

It is noted that, like any model, the pathway model is a simplification of reality. In this regard, it is important to acknowledge that there may be cases in which organisations do not follow the pathway as suggested. Some groups might not implement adaptation planning despite all apparent preconditions being met, while other groups who do not meet some of the preconditions may nonetheless proceed to conduct some form of adaptation planning. It will be important to record and examine any such counter examples, to help refine and advance the model.

The third goal of the project was to “work towards the development of a protocol for modes of engagement”. Again, the pathway model provides specific guidance for the nature of engagement that will be necessary for stakeholder groups who are at different points along the pathway. A formal protocol based on this model could be developed now, although it is probably advisable to conduct some empirical testing first, to provide some specific cases which confirm or disconfirm various aspects of the pathway.

The fourth goal of the project was to “develop a framework for monitoring the success of our communication, engagement and research”. This goal has been partially addressed by the recommendations relating to engagement evaluation that have been drawn out of the project stages to date. Stage 5 of the project will allow some preliminary testing of elements within the pathway model, as well as providing some actual examples of adaptation engagement project evaluation.

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