BROADLEAF CAPITAL INTERNATIONAL PTY LTD

ABN 24 054 021 117

23 Bettowynd Road
Pymble
NSW 2073
Australia

www.Broadleaf.com.au

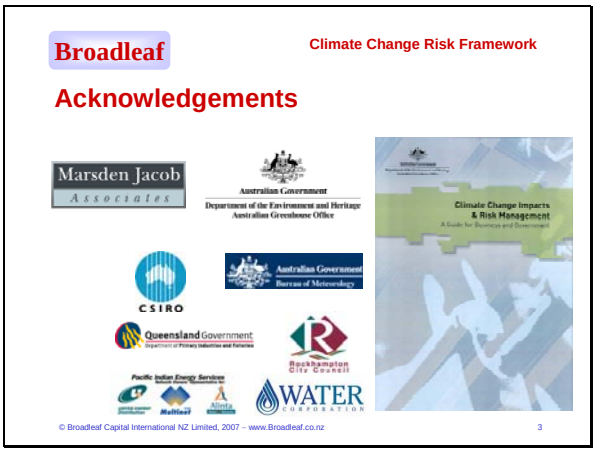
Tel: +61 2 9488 8477
Mobile: +61 4 1943 3184
Fax: + 61 2 9488 9685
Cooper@Broadleaf.com.au

Specialists in Strategic, Enterprise and Project Risk Management

CLIMATE CHANGE IMPACTS AND RISK MANAGEMENT

Dr Dale F Cooper
Director, Broadleaf Capital International

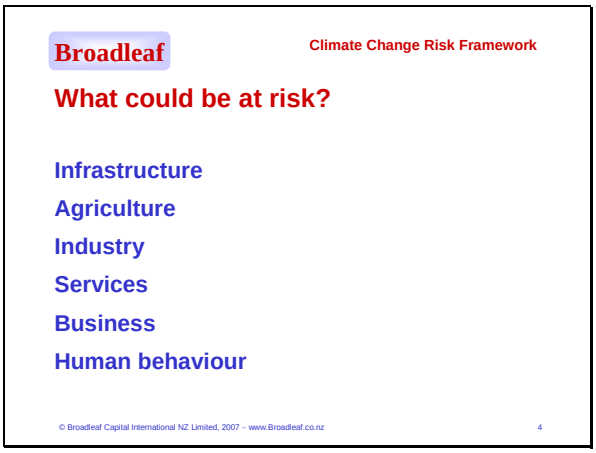
1 Introduction

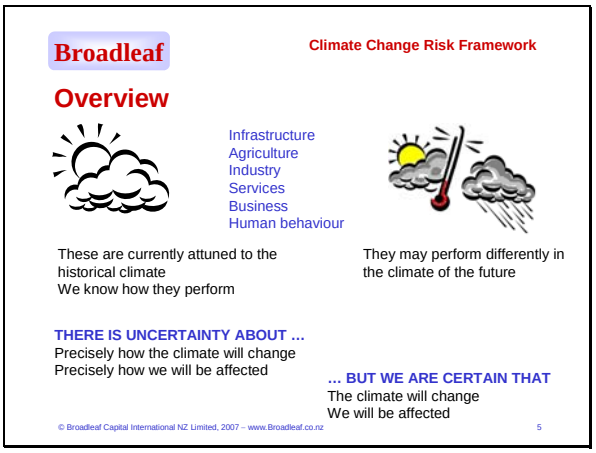


This paper was presented to a seminar Climate Change: What Does It Mean? organized by the New Zealand Society for Risk Management at the Museum of New Zealand Te Papa Tongarewa, Wellington, on Tuesday 10 July 2007.

The majority of the material in this paper was prepared as part of the development of 'Climate Change Impacts and Risk Management: for Business and Government' for the Australian Greenhouse Office (AGO) in 2006. The work was undertaken jointly by Dr Dale Cooper and Dr Stephen Grey of Broadleaf, Dr John Marsden and Peter Kinrade of Marsden Jacob Associates, and Dr James Risbey of Monash University (now with CSIRO), working with Dr John Higgins of the AGO. The development also involved discussions and climate science input from the CSIRO and the Bureau of Meteorology, and case study input from the Department of Primary Industries & Fisheries Queensland, Rockhampton City Council, United Energy and the Water Corporation of Western Australia.

2 Overview

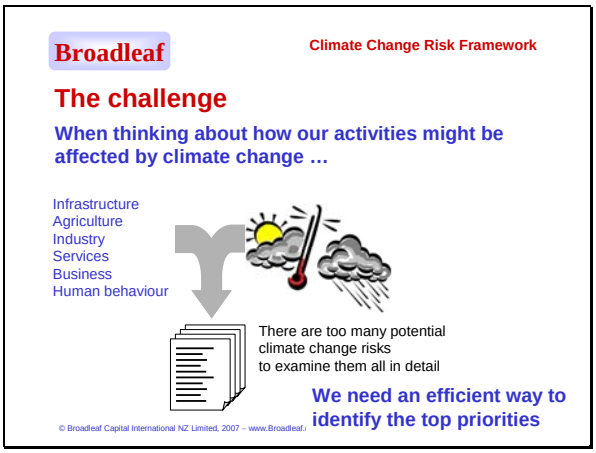




We do not know precisely how the climate will change, and there is uncertainty in the detailed projections of the future.

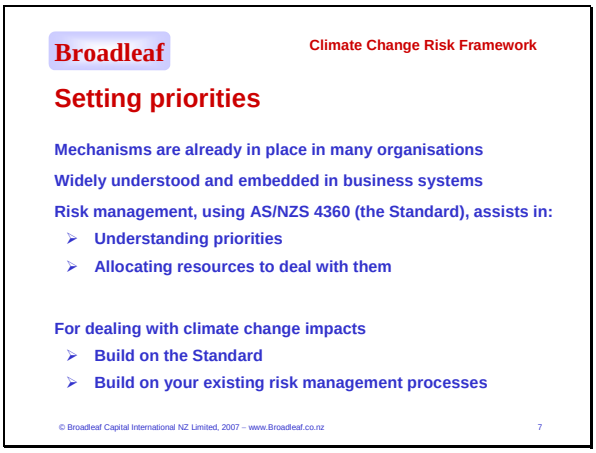
However, we do know that the climate will change. Even if there were immediate reductions in the emissions of greenhouse gasses there will be long-term and continuing effects on our climate.

The changes that are anticipated will affect all of us, and our children, and they will be significant and pervasive. We are moving into uncharted territory, and a climate regime that is unprecedented in the current historical record.



There will be demands for resources for adaptation actions associated with the effects of climate change. Each organisation will have other demands on its resources, and there are likely to be conflicts over resources. Priority-setting is important, and it should ideally be linked closely to the priority-setting processes used across your organisation, to allow more coherent and strategic allocation of scarce resources.

3 The Risk Management Standard AS/NZS 4360



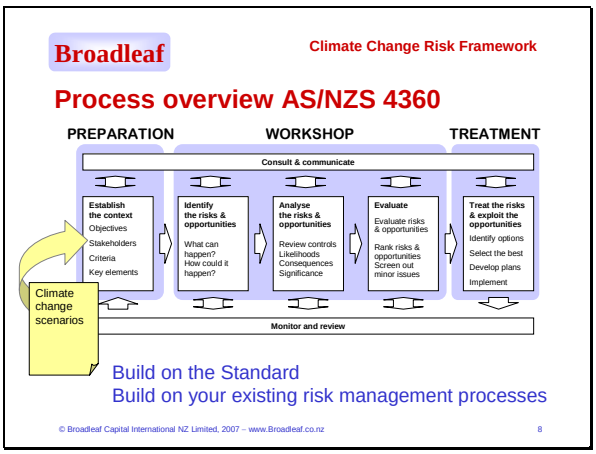
AS/NZS 4360 is a world-leading Standard, and the basis for the current work by the International Standards Organisation (ISO) on the development of an international risk management standard, ISO 31000. It is so successful because it is simple, it has wide applicability, it works for large and small organisations and it can be implemented across a range of sectors.

The Standard assists in understanding priorities and allocating resources.

Most organisations in Australia and New Zealand have risk management processes – we have been doing good risk management in Australasia for the past decade.

A key message when addressing the impacts of climate change is to build on your current risk management practices, using what you already do and extending the framework to include climate change impacts. This has several advantages:

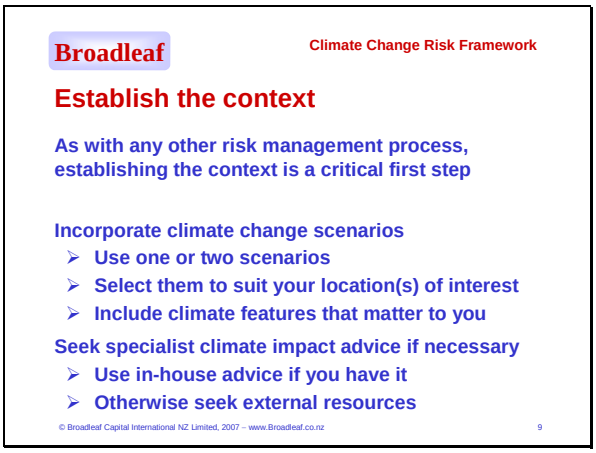
– You will be building on a process that is already used and understood, so the outcomes from a risk assessment of the effects of climate change are likely to be interpreted and accepted more readily;
– The priorities that emerge from the process are likely to be more closely aligned with the priorities generated by your current approach, supporting more appropriate trade-offs between actions necessary to address climate change impacts and other actions that require scarce organisational resources.



This paper does not spend much time on the basics of the risk management process – it focuses on how it can be applied to the impacts of climate change.

One important point should be noted: the process identifies risks **and opportunities**. Although many of the impacts of climate change will be negative, some of them will be positive, and it is important to recognise such opportunities and understand how they might be exploited. (For example, the effects of warmer temperatures and higher concentrations of CO2 may be beneficial in some agricultural areas.)

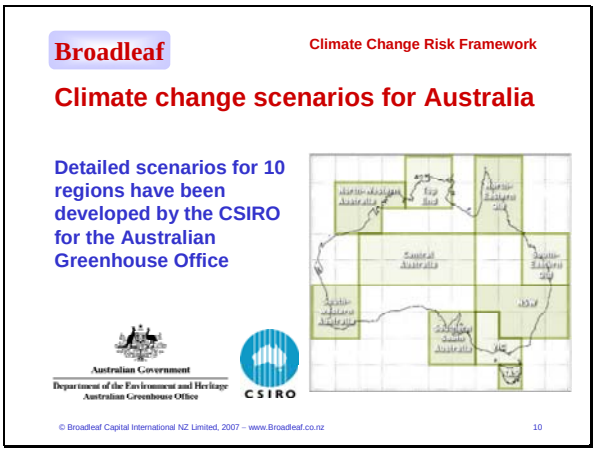
4 Establishing the Context and Climate Change Scenarios

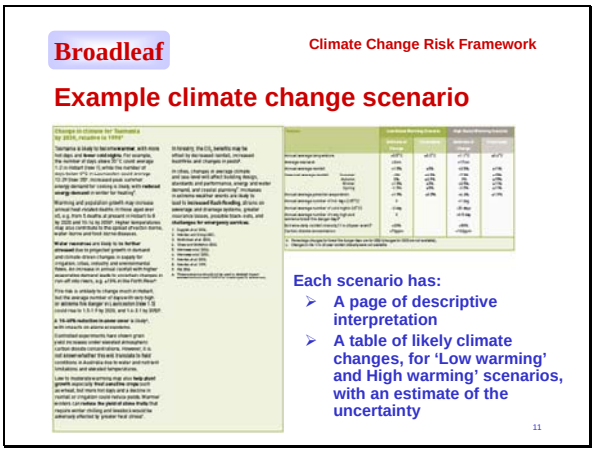


Scenarios are not precise projections, but rather broad pictures that describe plausible or credible states of the world in the future. From the case exercise workshops we conducted in field-testing the approach described in the Guide, we recommend no more than two scenarios be used as the basis for risk assessment activities – tempting as it may be to have a wide range of scenarios available for discussion, more than two just confuses people and makes the workshop more difficult to run, without generating any significant improvements in the assessment outcomes.

At least one of the scenarios should be a credible 'unpleasant' scenario, based on climate outcomes towards the extremes of projected ranges.

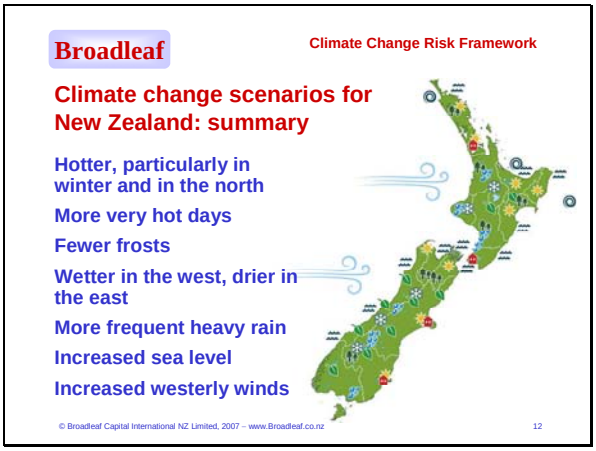
Scenarios work best with descriptive 'word pictures', as well as numerical indicators of climate measures such as temperature and rainfall.

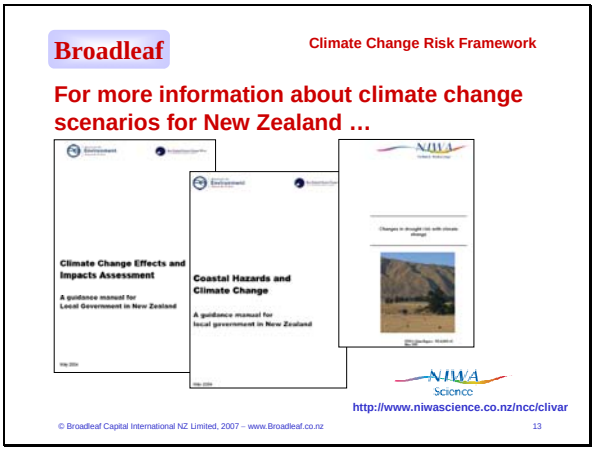




The CSIRO has developed climate change projections and scenarios for 10 regions in Australia, for the Australian Greenhouse Office. These scenarios are available from http://www.greenhouse.gov.au/impacts/publications/risk-scenarios.html.

The AGO intends to update these from time to time.

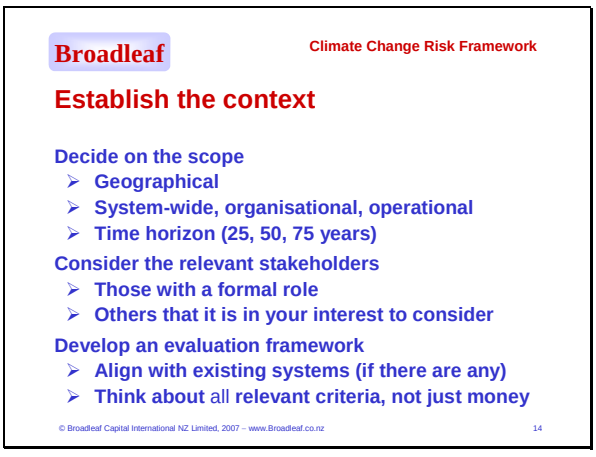




Climate change scenarios for New Zealand are provided in:
D Wratt, B Mullan, J Salinger, S Allan, T Morgan and G Kenny, Climate Change Effects and Impacts Assessment: A Guidance Manual for Local Government in New Zealand, May 2004
http://www.mfe.govt.nz/publications/climate/effects-impacts-may04/effects-impacts-may04.pdf

A range of NZ Government publications is available from
http://www.mfe.govt.nz/publications/climate/.

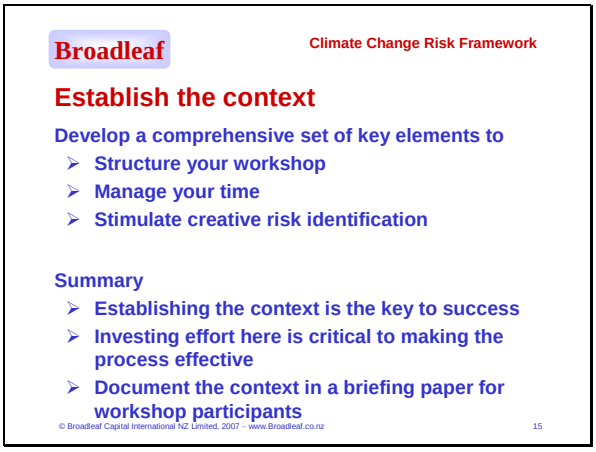
See also
http://www.mfe.govt.nz/publications/climate/preparing-for-adapting-climate-change-dec06/html/page4.html (for the map appearing above)
http://www.mfe.govt.nz/publications/climate/drought-risk-may05/drought-risk-climate-change-may05.pdf
http://www.niwascience.co.nz/ncc/clivar
http://www.niwascience.co.nz/ncc/clivar/scenarios



Stakeholder analysis is important in all risk assessments, and particularly important when considering climate change and its impacts due to the pervasive effects it will have on the communities in which we live and with whom our organisations must interact.

At a minimum, you should think about stakeholders' objectives and aspirations, as these must be included in the evaluation framework you use for thinking about the consequences of the risks you identify. In some circumstances, you may want to include stakeholders in your risk assessment. In most circumstances, you will need to communicate the outcomes from your risk assessments to stakeholders. See Section 4.4 of the Guide.

Criteria vary depending on the purpose of the assessment. The Guide (Tables 8, 9 and 10) contains examples for:
- A local authority;
- A public utility;
- A commercial business.



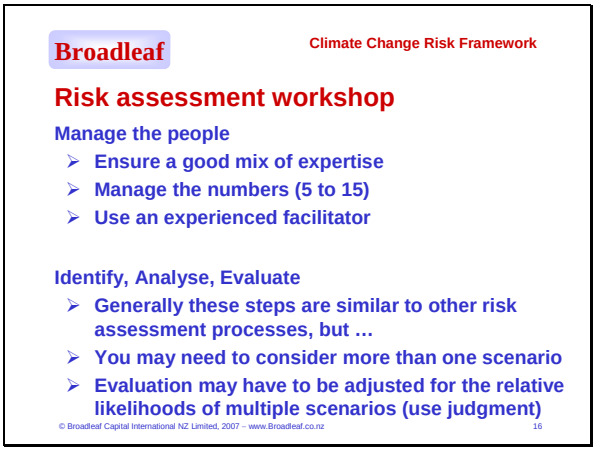
Key elements provide a structure for the assessment, an agenda and a stimulus for creative thought during the brainstorming process. They should span the full scope of interest, to ensure nothing important is left out and provide more confidence that the risk identification process has been comprehensive.

Ways of structuring might include:

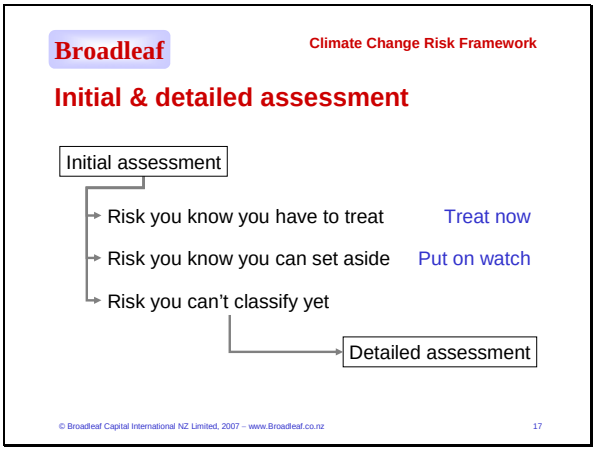
– Organisational functions or activities;
– Geographic areas or different land uses;
– Technology or assets of interest to the organisation;
– The services the organisation provides.

Table 13 of the Guide provides examples.

5 Risk Assessment



I do not intend to spend much time on this part of the process, as it is very familiar to most of you. I only want to reinforce a few points, and there is additional detail in the Guide.

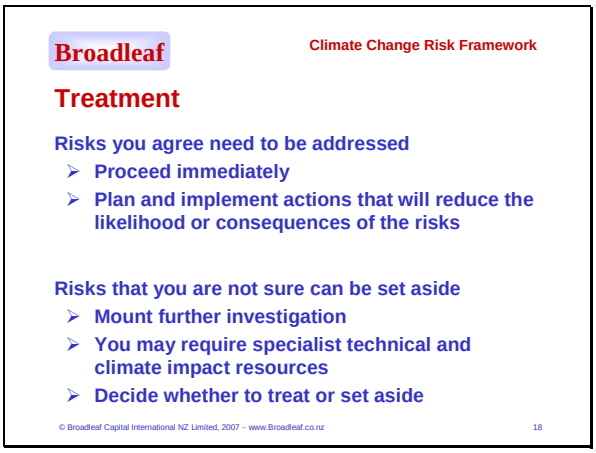


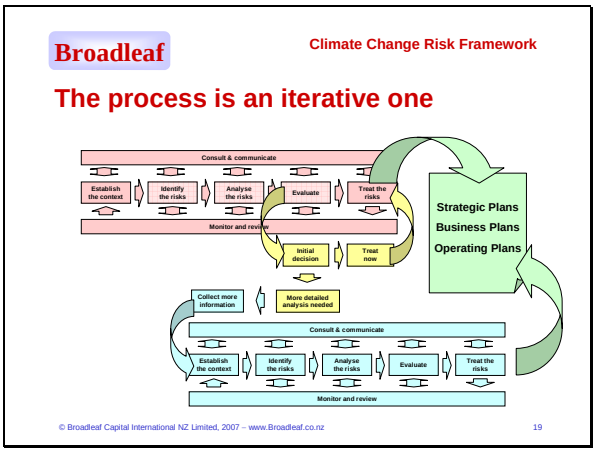
The outcome from the workshop is a triage of the risks and opportunities that have been identified:
Risks that require action now.

– Those that can be set aside, either because they are genuinely low risks, or because action may not be needed immediately or urgently. Note that these risks are not discarded – they are set aside on a watch list to be reviewed regularly, to determine whether the priority has changed or whether the triggers for more immediate action have arisen.
– Those, risks, generally not many of them, for which we need more information and more detailed assessment before we can make a decision about the need for immediate action.

In practice, classification into the first two groups is relatively easy with the right workshop participants – there are usually only a few risks that require additional information and analysis.

6 Risk Treatment

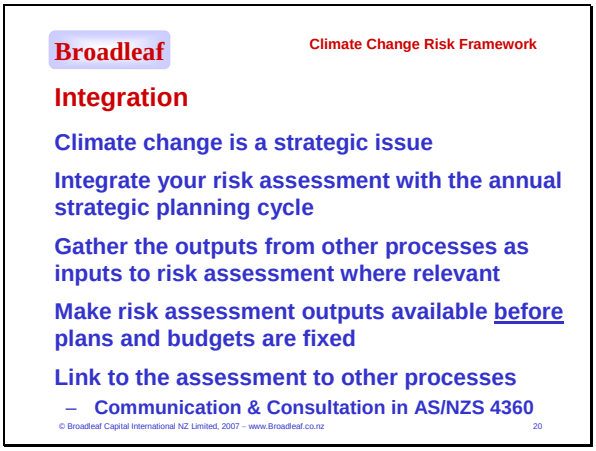




The additional information you need for more detailed analysis is not just concerned with climate science. You are more likely to need other kinds of models, such as:

- Economic models, e.g. for energy supply and demand;
- Demographics;
- Land use;
- Hydrographics;
- …

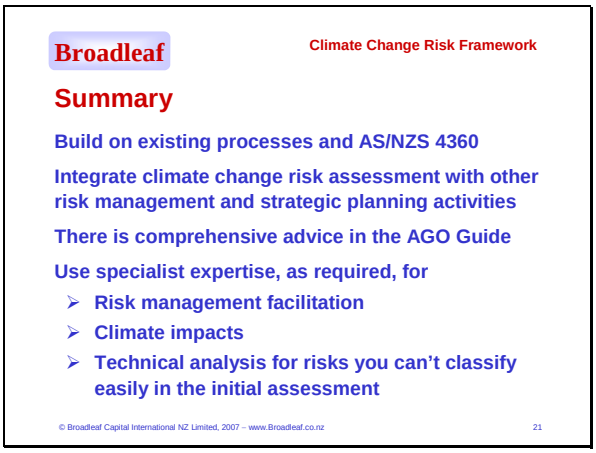
7 Integration with Other Organisational Processes



Other processes and environmental scans from which you may derive useful inputs for your climate impact risk assessment may provide information about:
Changes in population growth rates and demographics;
Changes in land use;
Changes in living standards and associated changes in community aspirations;
Changes in the policy and regulatory environment, including policy related to sustainable development and emissions initiatives.

Communication and consultation is linked to your stakeholder analysis in the Context stage. You should develop a comprehensive communication plan that covers this aspect of the process.

8 Summary



Additional information is provided in the Guide and on the Australian Greenhouse Office web site, www.Greenhouse.gov.au.

9 Contacts

For more information about the risk management aspects of the material discussed here, please contact:

Dr Dale F Cooper	Cooper@Broadleaf.com.au
Mike Wood	Wood@Broadleaf.co.nz
Dr Stephen Grey	Grey@Broadleaf.com.au
Dr Sam Beckett	Beckett@Broadleaf.com.au

Additional material is provided on our web site:

www.Broadleaf.com.au

www.Broadleaf.co.nz