

# Understanding Rural Landholder Responses to Climate Change

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# ILWS climate change research projects 2006-2010

Nth. Central CMA  
-perceptions and  
understandings  
**2006**



Lit Review  
(framework  
development)



**2007-08**



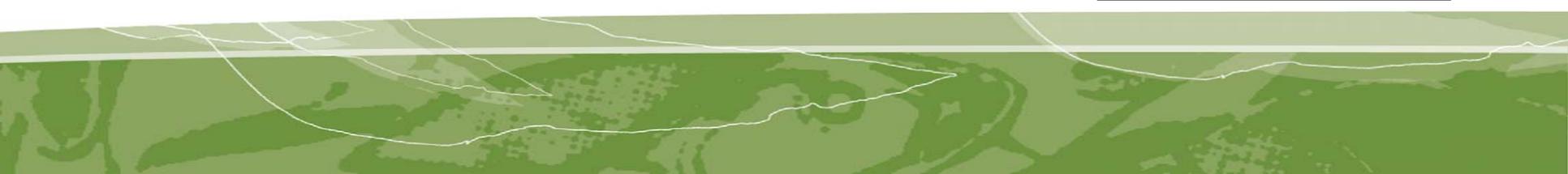
Nth. Central CMA  
Case study 1&2  
-perceptions and  
adaptation responses  
**2008**



North-east Vict  
Case study 3&4  
-beliefs, risk



**2009**



# Landscape Logic

## LL Social Research Program

### N. Central CMA perceptions study

Methods: Qualitative interviews (14)

#### Lit review

- Summarise recent research
- Identify useful frameworks (risk, NRM)
- Suggest principles

#### Case study 1 & 2 (Bendigo – Kamarooka, Muckleford)

- Beliefs & responses
- Adaptations & recc'd practices

**Methods:** Qualitative interviews (36)

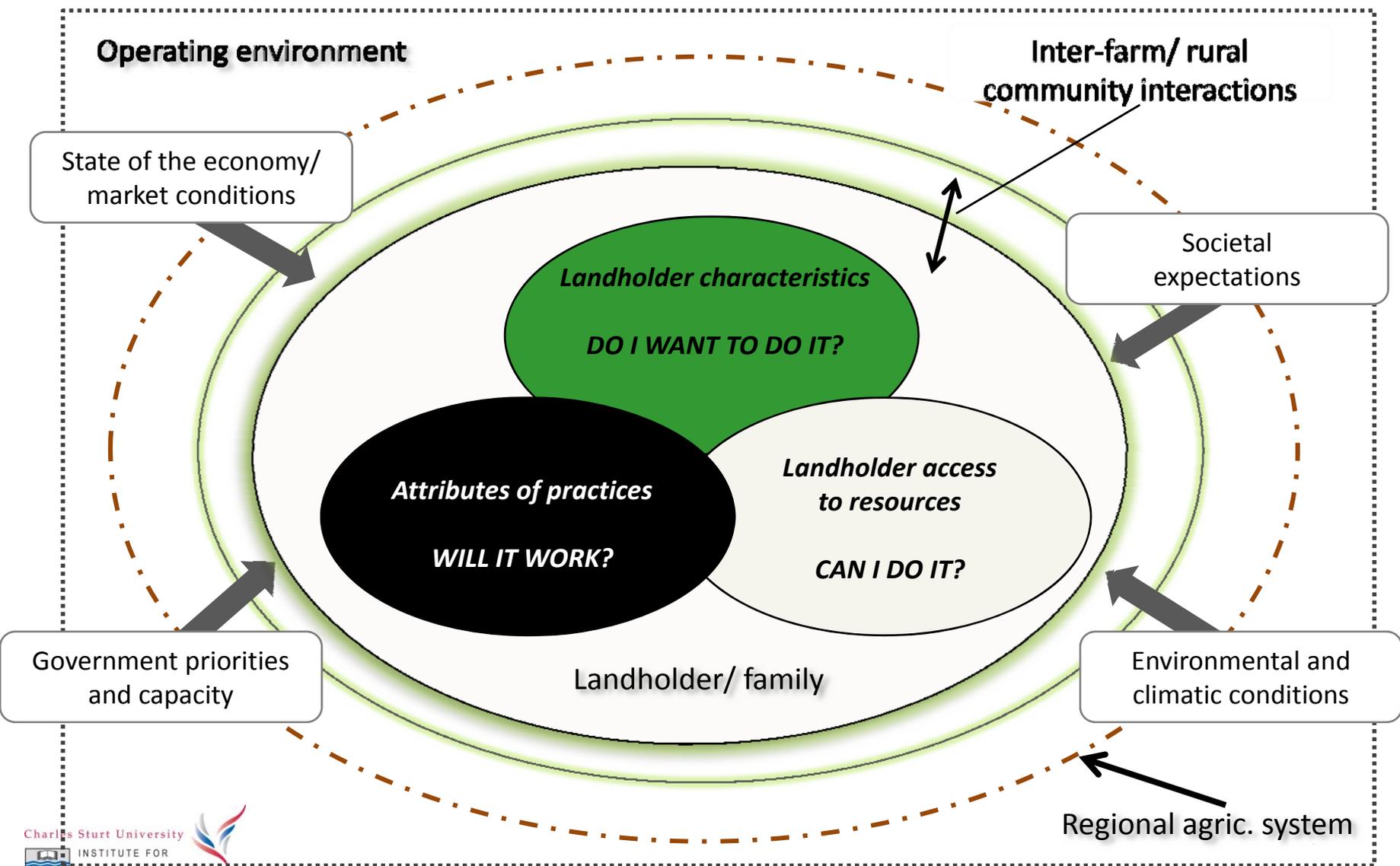
#### Case studies 3 & 4 (Eskdale/Mitta & Chiltern/ Mt Pilot)

- Beliefs & responses
- Views of risk/loss
- Resources needed to adapt

**Methods:**  
Qualitative interviews (15-20 per case)  
Mail survey (100 per case)

# Theoretical framework

## Factors influencing landholder decision making



# Victoria's Catchment Management Authorities

Department of  
Sustainability and  
Environment



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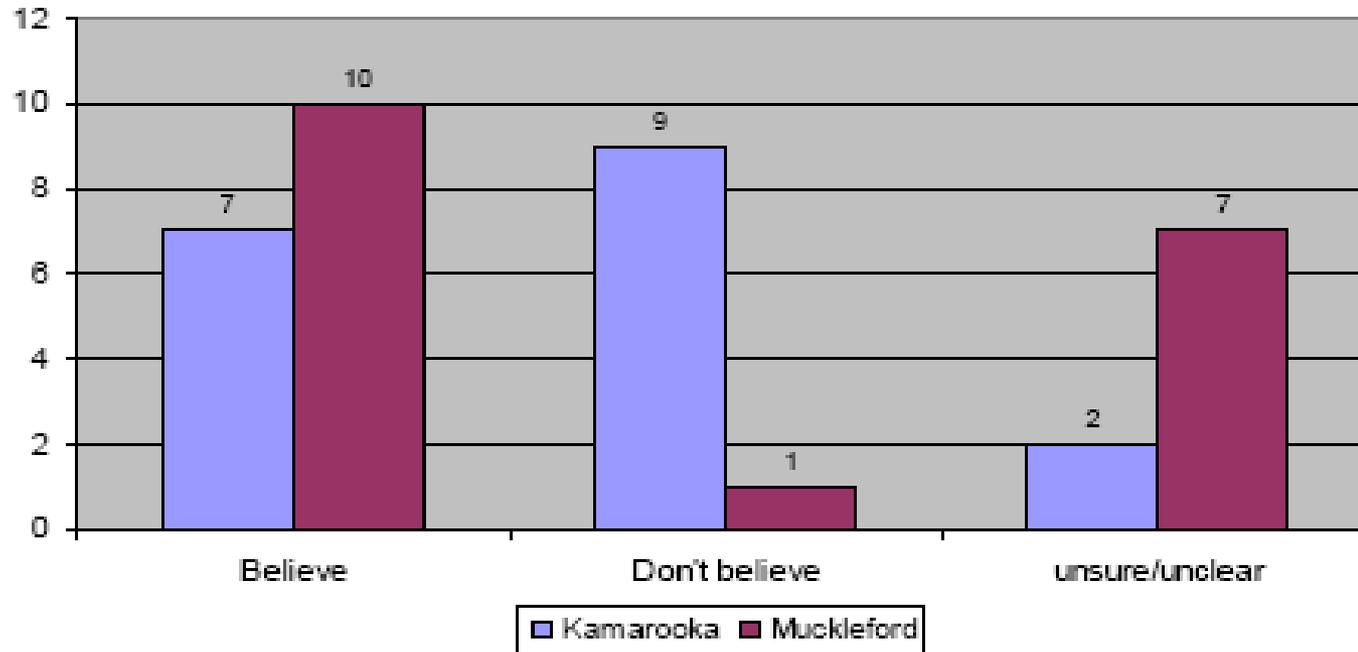
# North Central - Case studies 1 &2:

## Key questions

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- What is the range of landholder beliefs and responses related to climate variability and climate change?
- How important is climate as a factor contributing to enterprise/land management decisions?

# Belief in climate change



- *Climate change has to be real, so many people are talking about it*
- *Climate change is not real ... it's just part of the natural cycle ... we are going back to more normal years.*
- *Do you know? ... The climate has always been changing. There are a lot of questions and not a lot of answers.*

# Adaptation responses to climate

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- Climate one of many factors that interact in complex and dynamic ways.
- Improving water security
- Differences in pattern of responses between case study areas.

# Adaptations – response to risk

- **Muckleford:** hilly, light soil, small scale, single enterprise. Attitude to CC - belief/uncertainty.  
**Response:** shift towards low input/management system, reduce diversity, reduce debt/financial risk, reduce env degradation, workload.  
*- Why take risks and bust your gut when climate is against you?*
- **Kamarooka:** flat, fertile soils, larger scale, mixed enterprise. Attitude to CC - belief/disbelief  
**Response:** Seek greater efficiency – expanding, intensifying, refining operation. Lucerne.  
*- Happy to go into debt ... spend a dollar to make a dollar*

# Questions arising from Cases 1 & 2

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Number of questions, particularly re: causality of observed correlations.

Links between *agronomic potential*, *enterprise diversity*, and *optimism* in future or belief in *capacity to adapt* to future climate?

Under what conditions might *belief* in climate change lead to *pessimism* in future and resignation or reluctance to act?

Under what conditions might *belief* in climate change lead to *anticipatory action*, or transformation of the enterprise?

Is *disbelief* more likely on a property with good agronomic potential, more enterprise options, and optimistic outlook?

Does *disbelief* drive optimism?

# Focus for Case Studies 3 & 4

	Qualitative – Face-to-Face Interviews	Quantitative – Mail Survey
A	<p>Tighter questions regarding</p> <ul style="list-style-type: none"><li>•Belief in cc</li><li>•Personal impacts of cc</li><li>•Perception of personal risk</li><li>•Current actions (drought response)</li><li>•Future plans (anticipatory ?)</li></ul>	<p>What socio/Psychological factors influence people to take anticipatory action to address climate change?</p> <p>Beliefs, values, world views, commitment to place, knowledge etc. (QUANTITATIVE COMPONENT)</p>

# Case Study 3 (Mitta/Eskdale)

	Preliminary findings
Understanding of cc	Confused, unclear
Belief in cc	Fair degree of scepticism
Perceived personal risk	Low personal risk – loss of water main cause
Actions	No observed difference between believers and non-believers in the Mitta. Shifts from dairy to beef are common, but largely due to water, age and health.
Adaptability	Largely dependent on age, health and access to water. In the Mitta, most believed they had the resources to 'cope' – but unclear if they understood what they would have to cope with.

# Rationale for Mail Survey

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“What factors influence people to take adaptive action to address climate change?”

Reactive  Transformative action

= ∫ (*world views, belief in climate change, knowledge of climate change, values, risk perception, personal norms, commitment to place, perceived ability to adapt, resources*)



# Development of the scales

ILWS Model	Influential Factor	Source of scale
Do I want to do it?	World Views	Eckersley, 2007; New Env Paradigm
	Belief in climate change – is it true	Milne et al, 2008
	Knowledge of climate change	constructed
	Values – things of value that might be lost	Stern et al, 1998
	Risk perception – level of concern/severity	Leiserowitz, 2005; Langford, 2002
	Personal norms – sense of obligation	Stern et al, 1998
	Commitment to place	Jorgensen et al., 2001
Can I do it?	Adaptive actions – property mgt	Milne et al., 2008
	Perceived ability to adapt	Grothman and Patt, 2005
	Resources	Background info

## PART A: Changes in management in last 5 years/ next five years

Not applicable	Not interested for next 5 yrs	Have thought about it.	Plan to do in next 5 yrs	Am doing this now	Have done this in the past 5 yrs
1	2	3	4	5	6

## PART B: Extent influenced by climate change

Not applicable	Not a factor	Minor influence	Some influence	Influential	Very influential
1	2	3	4	5	6

Actions taken or under consideration	PART A: Changes in Management	PART B: Extent influenced by climate change
Improved ability to capture water on your property		
Improved efficiency of water usage on your property		
Established perennial pasture on your property		
An overall reduction in stocking rates for your property		
Moved from annual pasture to perennial pastures		
Purchased or leased more land in your district		
Purchased or leased more land in another district		
Diversification of farm enterprises		
Changed enterprise mix		
Increased fodder storage capacity on your property		

Not relevant	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
1	2	3	4	5	6

<b>Views on climate change</b>	<b>Your view</b>
The climate is changing	
If we do nothing climate change will have dire consequences for all living things, including humans	
Human activities are influencing changes in climate	
Climate might be changing but it is not as bad as it is being portrayed	
Climate is always changing. It is a naturally occurring phenomenon that has been going on forever	
Climate change is out of our control	
Humans will always adapt to their environment	
There is no such thing as climate change	
It is not too late to take action to address climate change	
The climate maybe changing but currently we are in a cycle	

## Part A: The likelihood of the potential impact affecting you/ your property

Not relevant	Highly unlikely	Unlikely	Unsure	Likely	Highly likely
1	2	3	4	5	6

Potential types of impacts on you/ your property	Likelihood of impact
Water supply for stock and domestic	
Water supply for pasture production	
Pasture productivity	
Survival of some native vegetation (trees, shrubs and grasses)	
Quality or health of native vegetation (trees, shrubs and grasses)	
Increased frequency and intensity of bush fires	
Attractiveness of property landscape	
Insect pests	
Pest plants	
House gardens (vegetables, fruits and flowers)	
Personal health and wellbeing	
Family health and wellbeing	

# Concluding comments

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- Improving landholder capacity to adapt to CC.
- Is belief in CC really necessary? 'No' but 'Yes'?
- 'Reactive' and 'anticipatory' adaptations – transformation in land use/enterprise.
- Building the theoretical framework

How to engage with the confused, cynics and disbelievers?

Do we have sufficient understanding of and agreement on regional scale CC impacts to be specific about what adaptations will be sufficient to deal with those impacts?

To what degree can we effectively promote the need to adapt to climate change without such understandings?