Understanding rural landholder’s and communities’ responses to climate change

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OUTLINE OF TALK

1. Purpose of project
2. Conceptual framework
3. Case studies and methods
4. Findings:
   • Perceptions of drought and climate change
   • Motivations and actions
   • Role of government
PROJECT OBJECTIVES

• To inform government drought policy and strategies on stakeholder perceptions of climate change

• To provide baseline information on current climate risk perceptions, management strategies and other related issues and risks facing rural communities
KEY QUESTIONS

• How do stakeholders perceive drought and climate change?

• What risk management strategies are agricultural industries implementing to adapt to climate risk?

• What role could government play in assisting rural industries and communities with respect to drought and climate change adaptation?
CONCEPTUAL FRAMEWORK

• Explores links between:
  (1) people’s perceptions of climate variability and climate change,
  (2) motivations,
  (3) adaptive capacity, and
  (4) climate risk management strategies and intended actions
CASE STUDIES

• Dryland regions in NSW where prior drought studies had been implemented
  – Temora (DoTARS study, 2004)
  – Condobolin (Alston and Kent, 2004)

• Irrigated regions in Victoria with a substantial area under horticulture
  – Cobram (stone fruits, dairy)
  – Mildura (grapes and citrus)
CASE STUDIES AND METHODS

Location of case study sites:
- Mildura
- Condobolin
- Temora
- Cobram
METHODS

• Literature review
• Face to face interviews (72)
  ~ Agriculturally reliant small businesses
  ~ Key informants across the community (e.g. school principals, members of the Council, health workers)
• Focus groups (2 per case study; 76 participants)
• Qualitative analysis
PERCEPTIONS AND DROUGHT IMPACTS

• One of the longest and most extensive periods of low rainfall experienced
• Short recovery time between low rainfall periods
• Drain on capital reserves and impact on next year’s production
• Dependency on irrigated water – buffer to drought and climate change impacts
Perceptions of drought: “the straw that broke the camel’s back.”

- Commodity price fluctuations
- Strength of the Australian dollar
- Changes to water access and use (irrigated regions)
- Skills and labour shortage
- Out-migration
- Declining community services
PERCEPTIONS OF CLIMATE CHANGE

1. ‘Yes, it is happening’ - this group were confident that climate change is happening.
2. ‘Probably, but not sure’ - thought that climate change might be happening but were not entirely confident.
3. ‘Yes, it is happening, but not here’ - believed climate change is happening but happening somewhere else and not linked to current drought.
4. ‘Don’t know’ - uncertainty and confusion about whether climate change is happening.
5. ‘No, it isn’t happening’ - did not believe that climate change was happening. “it’s natural cycle rather than anthropogenic climate change.”
SOURCES OF INFORMATION

• A sense of too much conflicting information on climate change
• Historical rainfall and temperature records
• Historical observation and family anecdotes
• Scientific papers, industry associations, government, and media
• Don’t seek information
MOTIVATIONS TO RESPOND TO CLIMATE CHANGE

1. Immediate sense of threat to one’s livelihood

2. Sense of moral responsibility

3. Taking up the challenge
TACTICAL RISK STRATEGIES

- Retaining or reducing labour
- Cost cutting
- Culling
- Selective watering of orchards
- ‘Riding it through’ or ‘waiting to see’
STRATEGIC RISK STRATEGIES

Irrigation
- Water use efficiency
- Water trading
- Irrigation technology
- Carry over water
- Industry exit

Dryland
- Diversification on and off farm
- Forecasts
- Conservation farming
- Direct drilling
- Expansion of farm size
- Water use efficiency
TYPOLOGIES – agriculturally reliant small businesses

A. Belief – action
• More open to idea of climate change – increasingly strategic action

B. Sceptical – action
• Less open to idea of climate change – increasingly strategic action

C. Belief – inaction
• More open to idea of climate change – more tactical actions

D. Sceptical – inaction
• Less open to idea of climate change – more tactical actions
MOTIVATIONS AND ACTIONS

Is climate change happening? (x-axis)

Less open to the idea

More open to the idea

Strategies / Intentions (y-axis)

Increasingly strategic

Group A:
Believe in climate change
Whole system changes

Cobram
Mildura
Condobolin
Temora
Group B:
Sceptical of climate change
Still making system changes

Is climate change happening? (x-axis)
Less open to the idea
More open to the idea

Strategies / Intentions (y-axis)
Increasingly strategic

Legend:
- Cobram
- Mildura
- Condobolin
- Temora
MOTIVATIONS AND ACTIONS

Is climate change happening? (x-axis)

Less open to the idea

More open to the idea

Group C:
Believe in climate change
Not sure how to manage climate change

Strategies / Intentions (y-axis)
Is climate change happening? (x-axis)

Less open to the idea

More open to the idea

Strategies / Intentions (y-axis)

Increasingly strategic

Motivations and Actions

Group D:
Sceptical about climate change
Few risk management strategies
COMMUNICATION AND AWARENESS

• The study highlighted the varied levels of uncertainty about climate change, the different levels and stages of preparedness and requirements for communication

• Highlighted the importance of agricultural extension initiatives to support those who are either uncertain about climate change or in transition towards on-going adaptation for climate change
FURTHER RESEARCH

• Understanding the role of adaptive capacity

• Explore adaptation at different scales

• Large-scale survey of landholders (n=4000) administered in 2008