

*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?

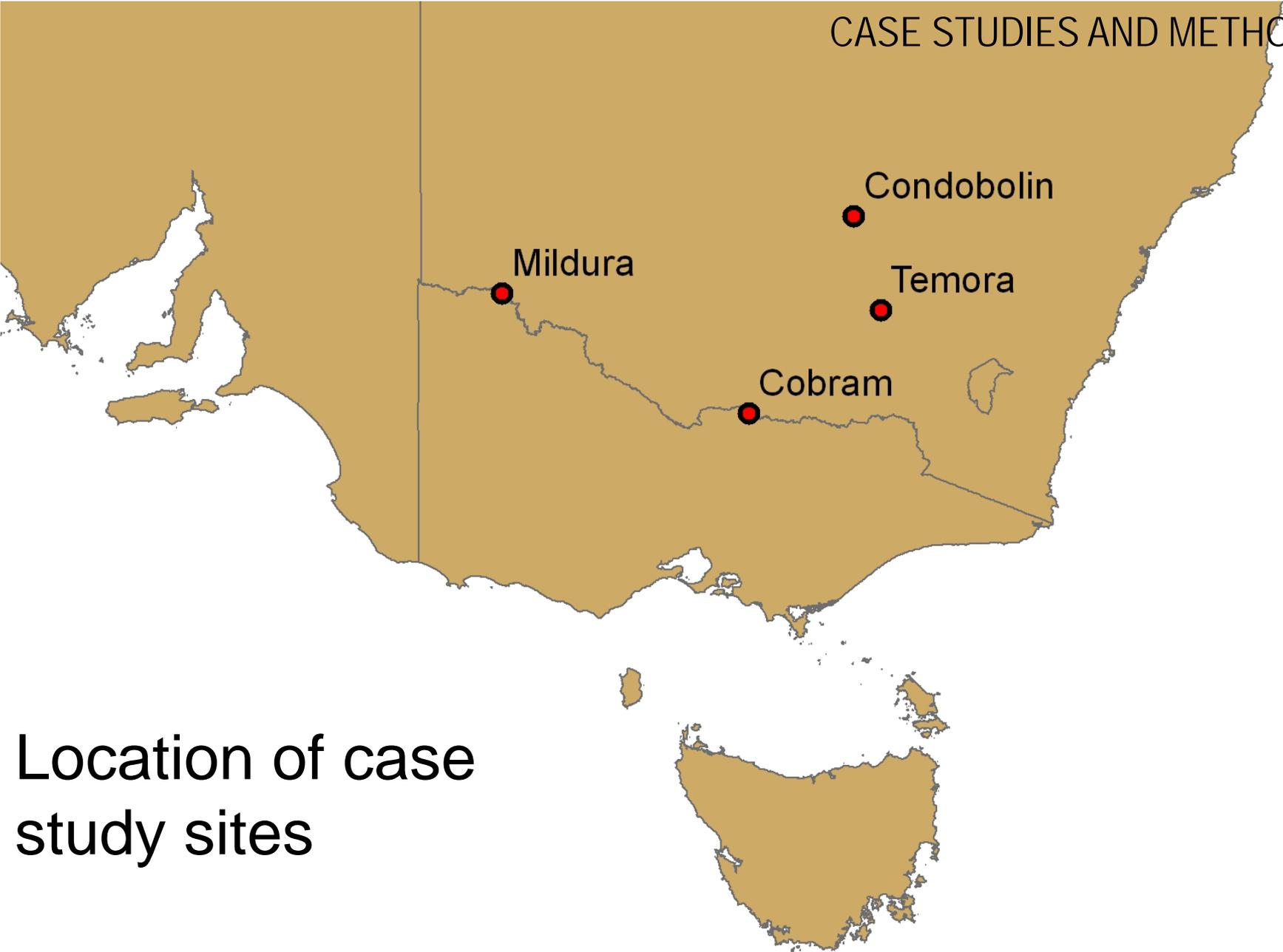
CONCEPTUAL FRAMEWORK

- 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

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

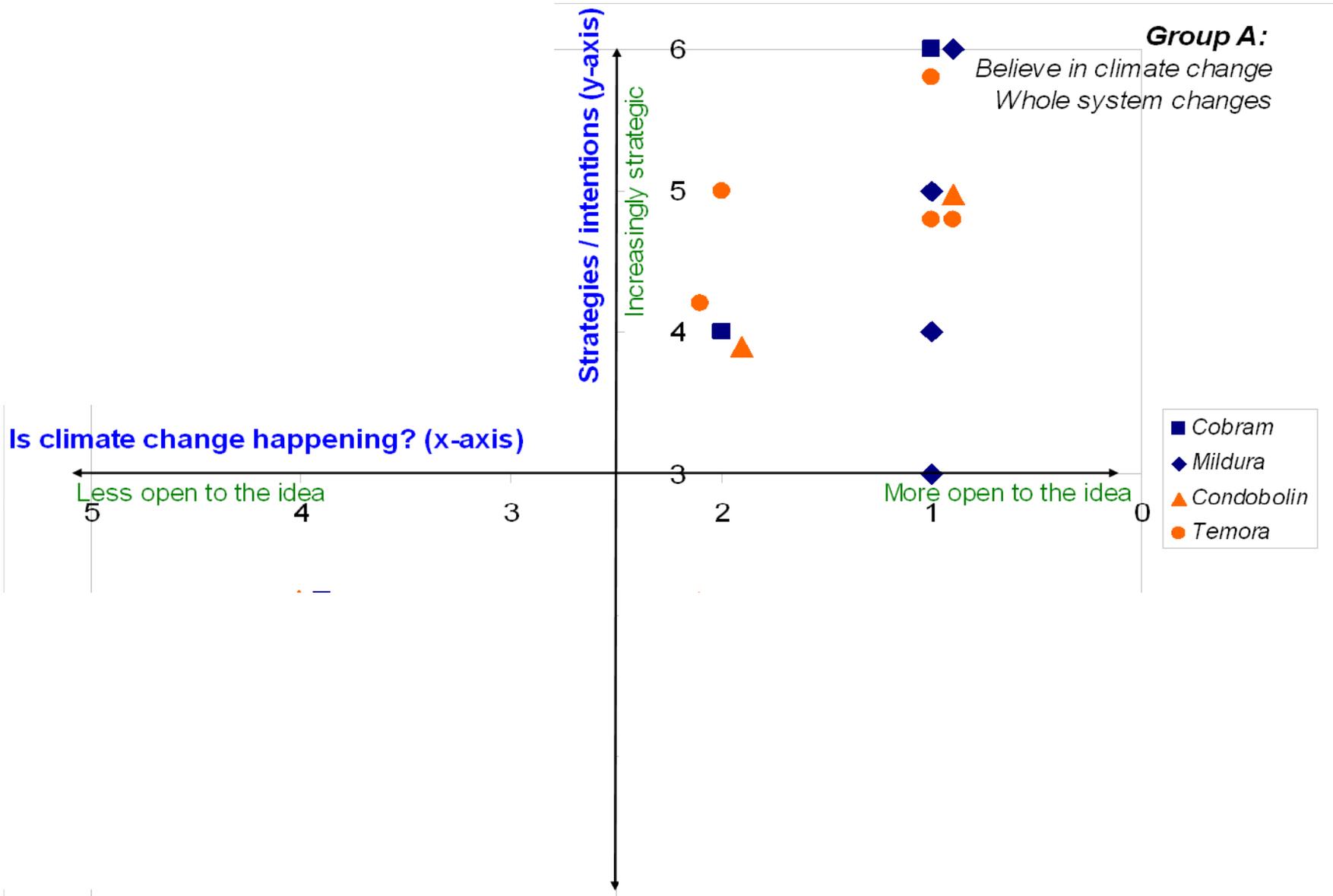
C. Belief – inaction

- More open to idea of climate change – more tactical actions

D. Sceptical – inaction

- Less open to idea of climate change – more tactical actions

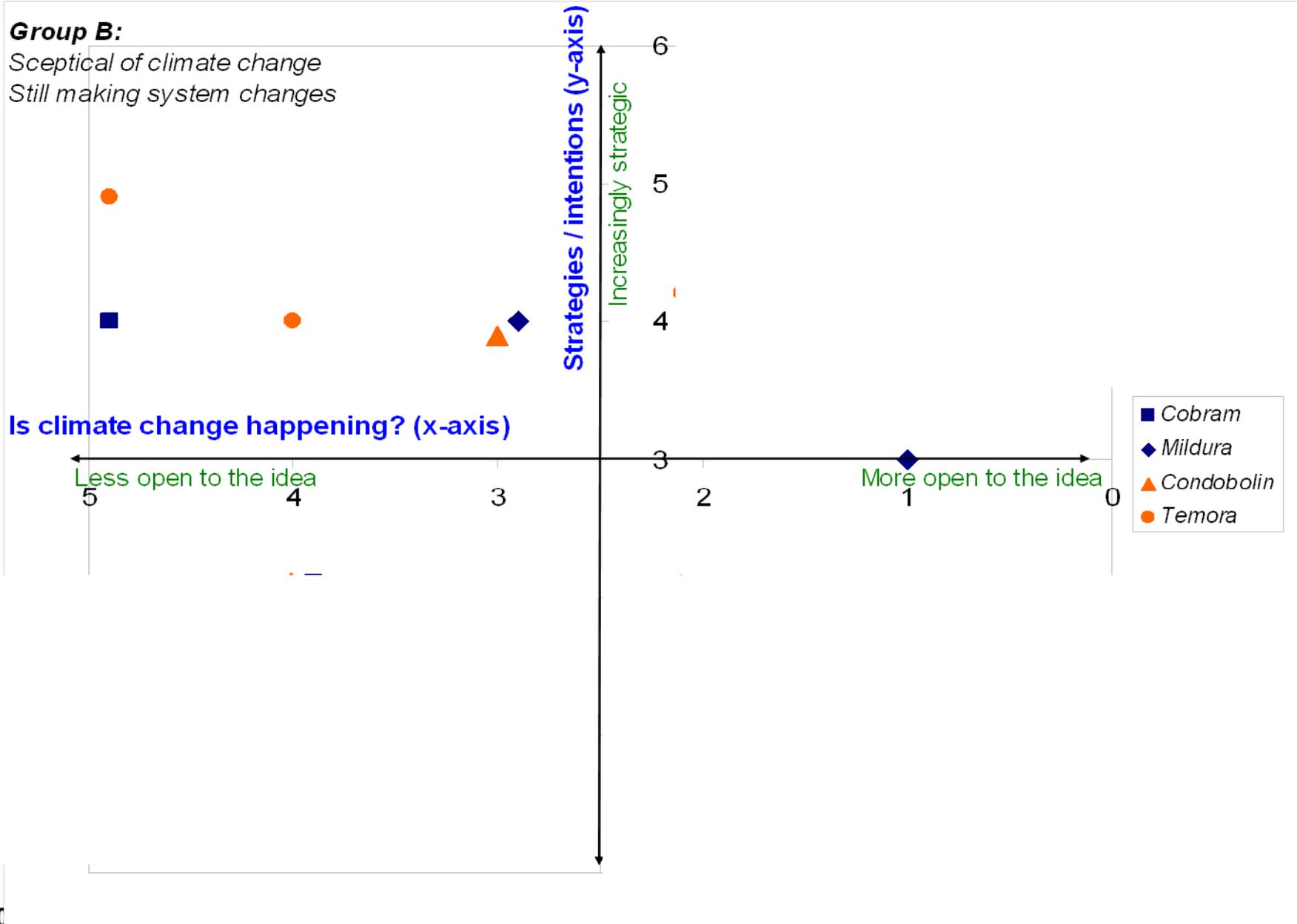
MOTIVATIONS AND ACTIONS



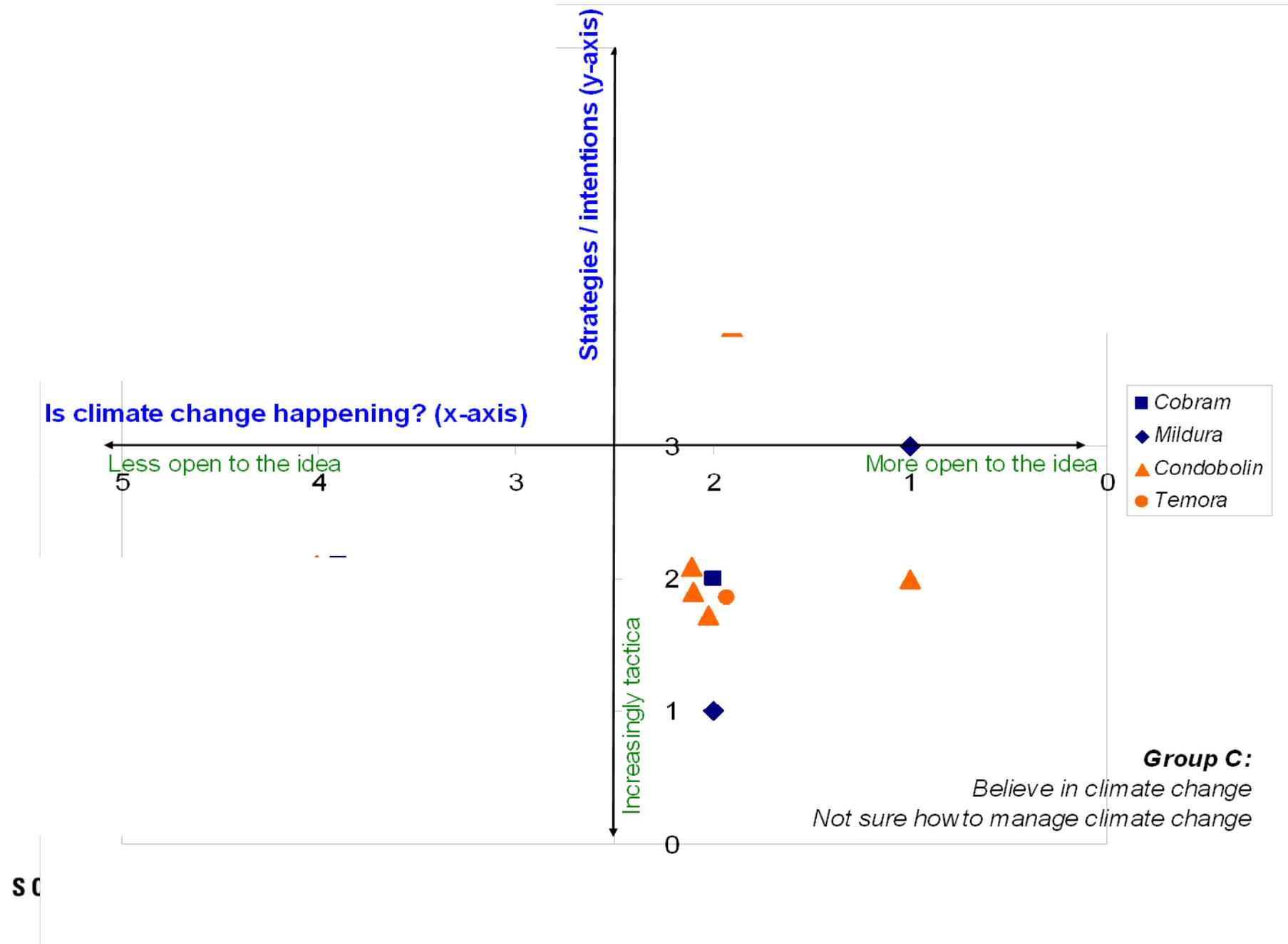
MOTIVATIONS AND ACTIONS

Group B:

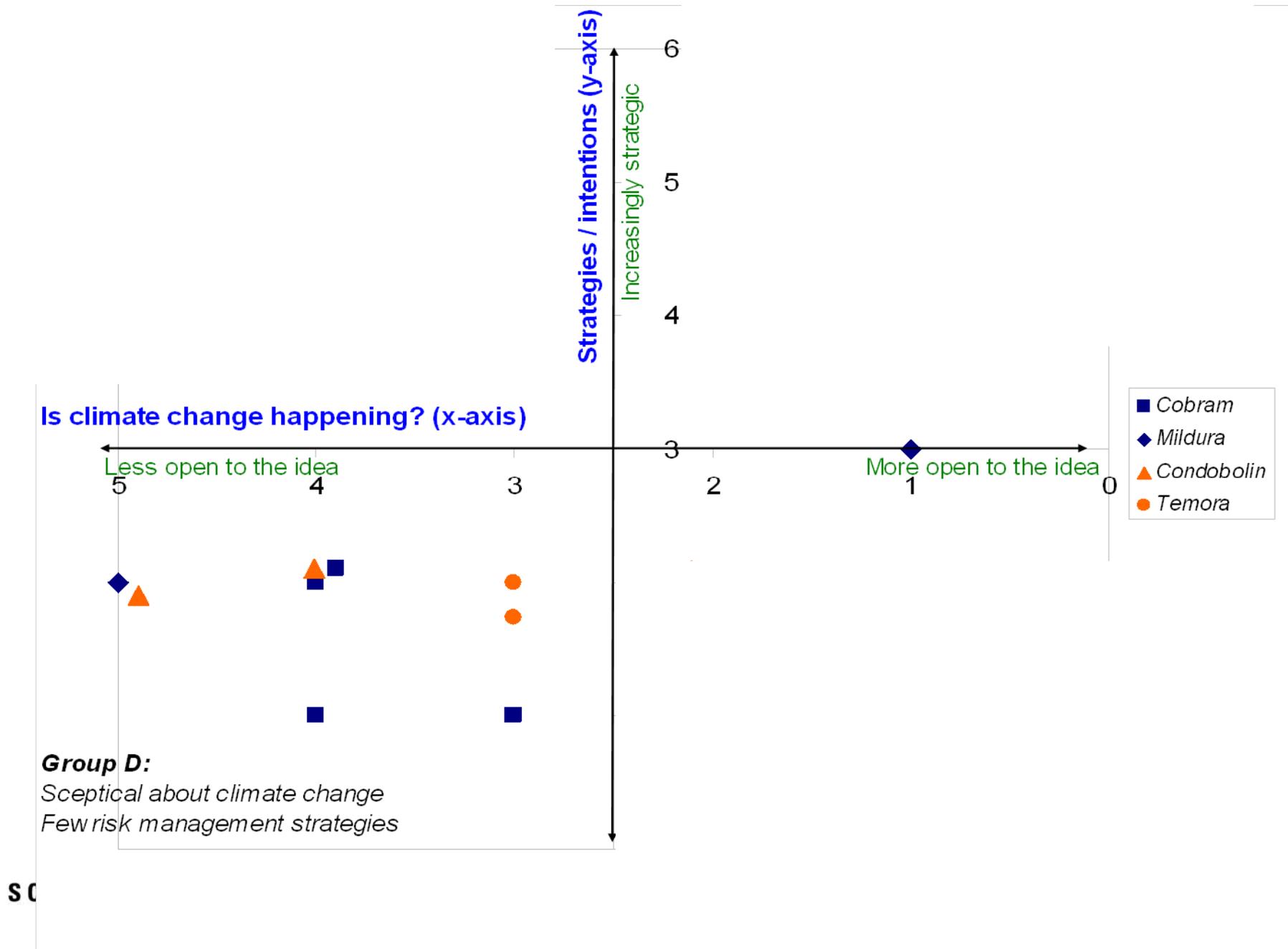
Sceptical of climate change
Still making system changes



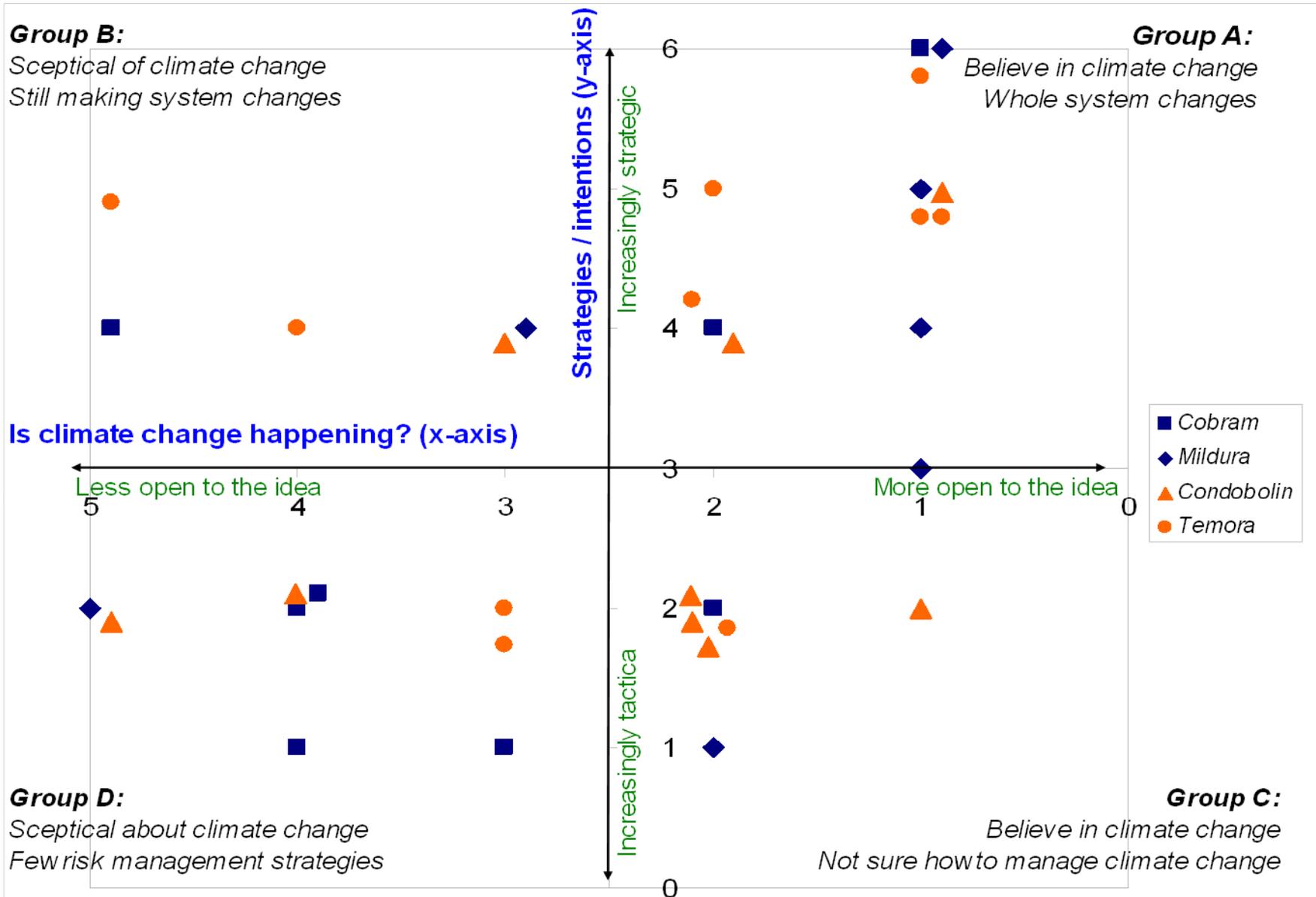
MOTIVATIONS AND ACTIONS



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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