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**World views and climate change: Synthesising lessons in adapting to climate change from the stories people tell**

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## INTRODUCTION

"A world view is a coherent collection of concepts and theorems that must allow us to construct a global image of the world, and in this way to understand as many elements of our experience as possible" (Vidal 2008). As such the concept of a worldview is important in trying to understand how people orient themselves to the world they live in and how they need to act within it. Worldviews have been identified as important determinants of people's understandings of and responses to risk (Douglas and Wildavsky 1982, Palmer 1996, Dake 1991) and can also be used to explain interactions people have with their environment. Importantly from the perspective of this paper, worldviews can also be used to explain people's understanding of and responses to climate change (O'Connor, Bard and Fisher 1999, Weber 2010, Wolf and Moser 2011).

Climate change and how people respond to it has been deemed a "wicked problem" (Ludwig 2001, APSC 2007, Noble and Bennett 2007, Lazarus 2009) and as such needs to be dealt with using frameworks adapted to dealing with complexity. One such framework, developed by David Snowden and colleagues is the Cynefin framework (Kurtz and Snowden 2003, Snowden and Boone 2007) which posits that phenomena may be understood in terms of what we can know about them; whether there are discernable and repeatable cause-effect relationships. Snowden and colleagues identify five domains, four of which are related to order and the fifth, which will not concern us here is the domain of disorder. The simple domain reflects phenomena in which cause effect relationships are known and repeatable; in the complicated domain cause effect relationships are knowable but uncertain due to spatial and or temporal lags; in the complex domain cause-effect relationships are not discernable (except retrospectively) and are not repeatable; in the chaotic domain there are no cause effect relationships. The Cynefin framework provides a useful tool to examine complex problems such as climate change and particularly how people conceive climate change. We have thus sought to use the framework as a mechanism to examine worldviews that relate to order. In the remainder of the paper we briefly outline the data and analytical approach we have used and then present results from our analysis of people's narratives of their experineces of adapting to climate change in relation to the Cynefin framework.

## SOURCES OF DATA AND METHODS OF ANALYSIS

An online survey instrument,designed to explore peoples perspectives on what enabled and what constrained adaptation to climate change, was developed and implemented using SenseMaker[tm]. The instrument comprised several components: In the first respondents were presented with an imaginary scenario that placed them in a lift with two strangers who were discussing adaptation to climate change. The respondent was asked to write a response to the question asked of them by the strangers in the imaginary scenario. In the second section of the instrument the respondent was asked to identify properties of the response they gave. These included: who was involved in their response; when the events had occurred; the respondent's purpose in describing these events and how they were feeling about these events; and what themes were identifiable in their response. In the third section of the instrument the respondent was asked some questions about themselves such as their age, which country and region they lived in and their professional or personal role. The list of options provided in the question about their professional personal role was the same set that was asked about who was in the narrative response.

The instrument was applied to 3 separate groups of respondents; the first group comprised people attending a conference on climate change adaptation held in the Gold Coast in June and July 2010. The second group comprised staff in the Department of Sustainability and Environment in the state government of Victoria. The final group where individuals from a survey panel who resided in coastal regions along the eastern and southern seaboard of Australia. In all 666 responses were available for the analyses described in this paper.

Based upon qualitative responses, participants were classified by two idependent researchers into a Cynefin framework-based worldview. A good interrater reliability was found for participants classified as having either a simple, complicated, complex or chaotic worldview.

## RESULTS

### What helped adaptation?

Respondents whose narratives reflected different worldview orientations identified different factors as helping adaptation in their narratives. We used the chi-square test to examine whether the frequency of mention of a particular factor was greater than chance or less than chance would predict (Figure 1). Survey respondents whose narratives reflected a simple worldview were oriented towards technology rather than money or regulatory devices and those with narratives that reflected complicated or chaotic worldview orientations identified money more than technology or regulatory devices as helping adaptation. Respondents with narratives reflecting complex worldview orientations were more likely to identify regulations as helping adaptation than either of the other two options.

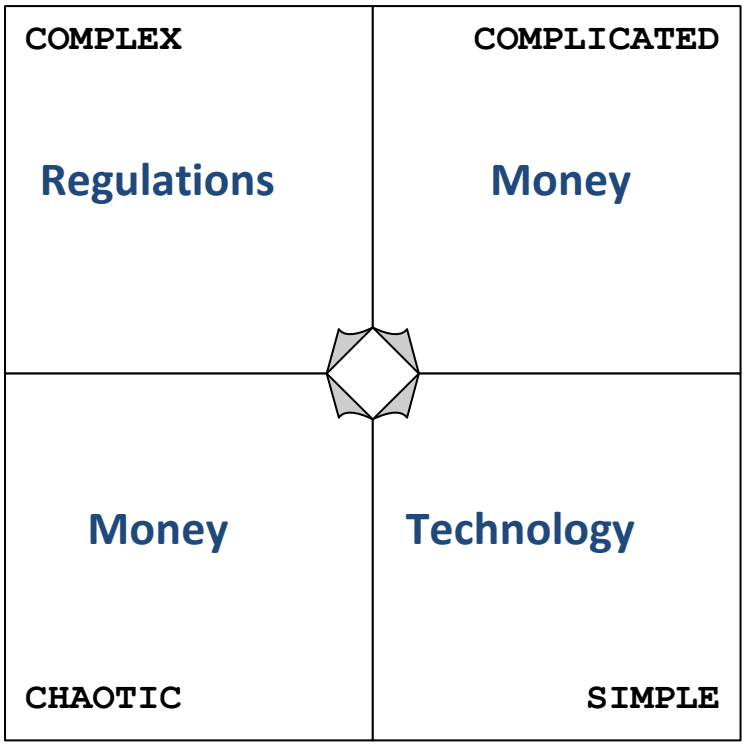


**Figure 1. What people with different worldview orientations identified as most strongly helping adaptation to climate change.**

### How strong were their responses to what helps adaptation?

In choosing among regulations, money or technology as helping adaptation survey respondents were able to identify the relative strength of the relationships in their narratives; if one of the elements dominated their response then this was deemed a strong relationship; if all of the elements were equally present in their responses and this was deemed a week relationship. We used the chi-square test to examine whether the frequency of responses in strong or weak categories was greater than chance or less than chance would predict (Figure 2). Respondents from the ordered side of the CYNEFIN framework (simple and complicated) tended to identify a single strong factor where as respondents from the unordered side of the CYNEFIN framework (complex and chaotic) were more likely to identify composite factors which we call a weak relationship, although we were unable to be statistically confident that respondents with complex worldviews were more likely to reflect weak relationships.

**Who is in and who is not in narratives of adaptation?**

The relationships between worldview orientations and the groups that were identified as being a part of each respondent's experiences were very interesting with the diagonally opposite worldview orientations showing completely opposite patterns of who was in and who was not in the narrative. We use the chi-square test to examine whether the frequency of mention of a particular group was greater than chance or less than chance would predict (Figure 3). Respondents with a simple worldview orientations were most likely to talk about members of the general public in their responses and unlikely to talk about representatives of NGOs or other civil society groups. In the opposite corner of the CYNEFIN framework, respondents with complex worldview orientations were most likely to identify civil society or NGO representatives and unlikely to talk about the general public. Respondents coded as holding a complicated worldview orientation were most likely to talk about scientists, academics or researchers and unlikely to talk about representatives of civil society or government employees. Respondents coded is holding a chaotic worldview orientations were most likely to talk about government employees and unlikely to talk about scientists, academics or researchers.

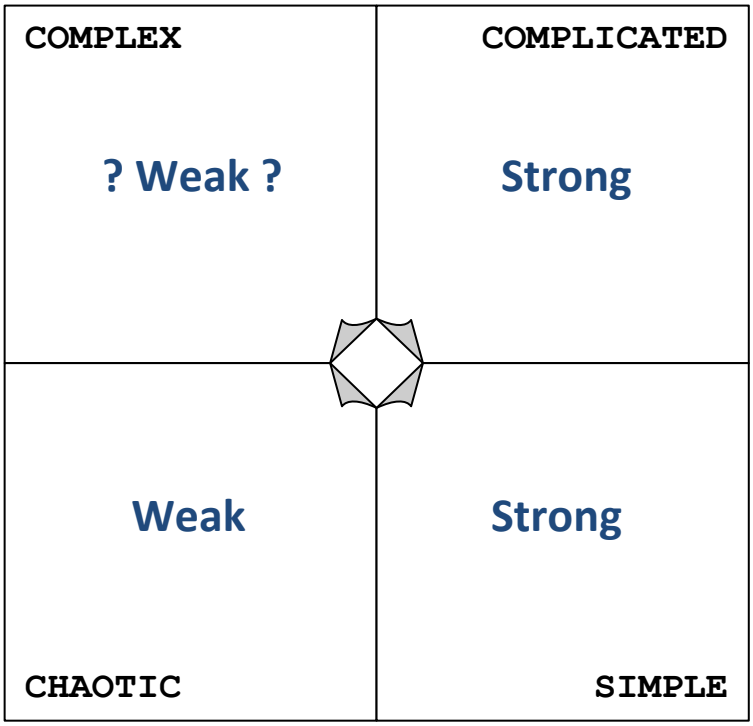


Figure 2. How strongly people with different worldview orientations identified factors helping adaptation to climate change.

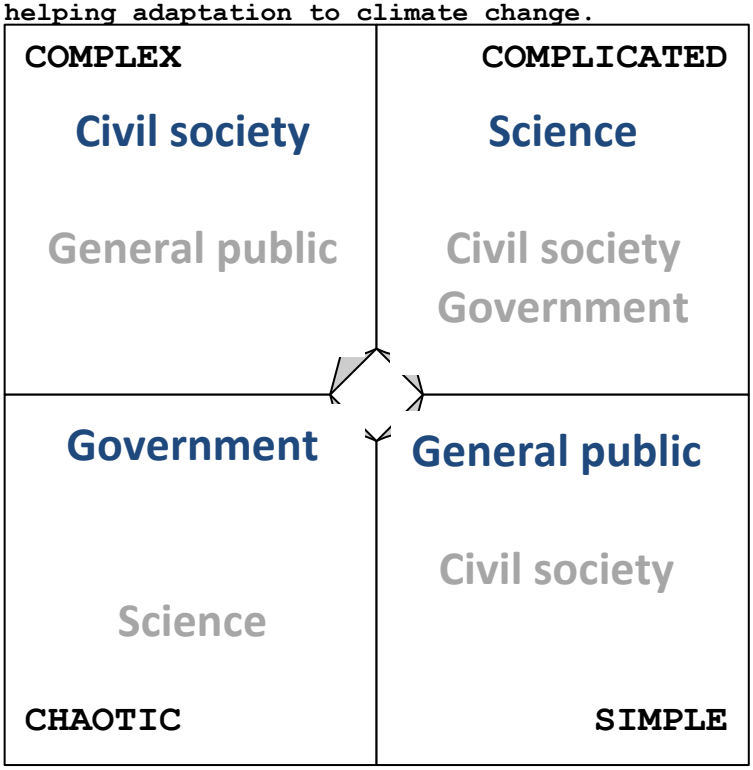


Figure 3. Which social groups people with different worldview orientations identified and did not identity in their narratives of adaptation to climate change.The identified groups are shown in blue text and those that were not identified are shown in grey text.

**What was their purpose in relating the narrative?**

Respondents were given the opportunity to select from a list of what their purpose was in relaying to us their particular narrative. The list included to complain, to criticise, to defend, to get it off their chest, to share achievements, to inspire, to encourage, to inform, to influence and to entertain. The first four of these were recoded as negative purposes and the last six were recoded as positive purposes. Respondents from the ordered side of the CYNEFIN framework (SIMPLE and COMPLICATED) tended to be identified with negative purposes whilst those from the unordered side (COMPLEX and CHAOTIC) tended to be more positive (Figure 4).

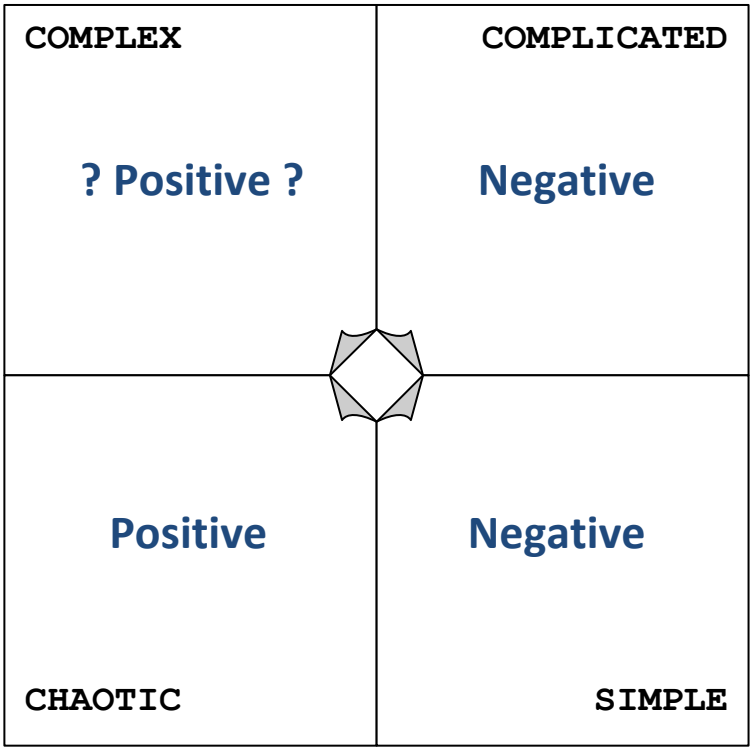


Figure 2. The purpose people with different worldview orientations had in telling their stories of adaptation. Negative included: complain, criticise, defend, get off chest. Positive included: Share achievements, inspire, encourage, inform, influence, entertain.

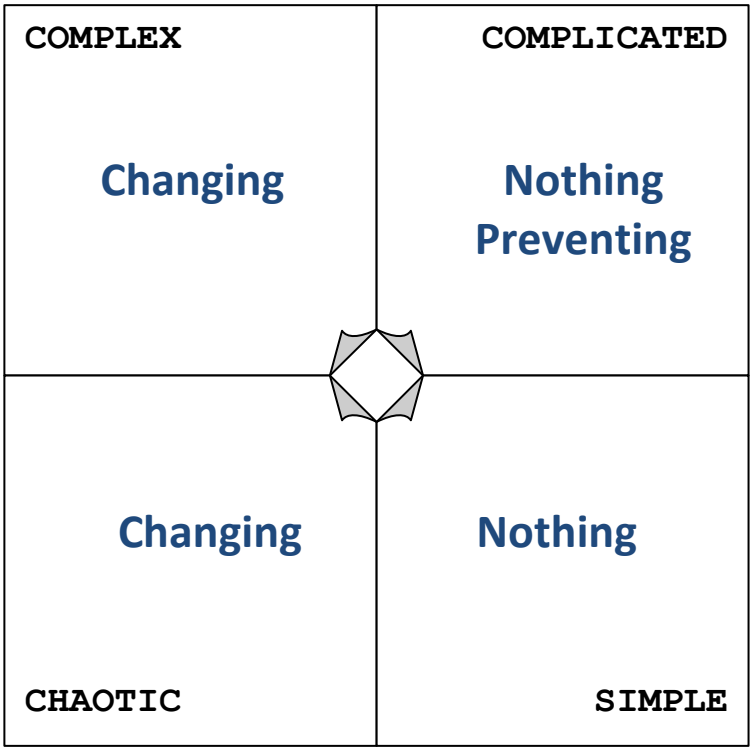


Figure 3. The change activities identified by people with different worldview orientations.

**Worldviews appear to orient respondents to taking action**

Not surprisingly, given the patterns we have already articulated, the worldview orientations respondents appear to hold were indicative of their propensity to act. Respondents holding worldviews from the ordered side of the CYNEFIN framework were most likely to relate experiences of doing nothing or preventing change whereas those from the unordered worldviews were most likely to relate experiences of preparing for change or changing (Figure 5).

## TAKE HOME MESSAGES

The worldviews people hold appear to orientate them to the number of important considerations in relation to adaptation to climate change:

- What people recognise as helping them to adapt and the degree to which they strongly identify one or a mixture of factors;
- Who is highlighted or spoken about in relation to adaptation and importantly who is not even considered;
- How they felt about their experiences and why they sought to tell us about them;
- Perhaps most important of all whether or not they take early action or seek to prevent change.

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