

# **BELIEFS AND ACTIONS ABOUT CLIMATE CHANGE: RESULTS OF A PILOT SEGMENTATION STUDY**

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## **Summary**

For people to be motivated to fight climate change they must believe that the phenomenon is real and they must be able to conceive of a world in at least 20 years time. Previous experiences showed that both sources of motivation appeared to be in doubt.

Why or why not do people believe that climate change is happening and that we are causing it? What are the critical beliefs that lead to action or non-action. To what extent are the deniers having an effect on these beliefs and what then is an effective strategy for overcoming this effect? This report goes some way in answering those questions but needs to be followed up by a more substantial national survey refined as suggested by these results.

The questionnaire was progressively changed through discussions and pre-piloting and then administered to a diverse sample from South-East Australia. This sample was reduced to a controlled sample of 69 so that results were not the product of biased demographics.

A strategic overview of the interrelationships in the data showed that the believers and doers are older, of higher socioeconomic status (SES) and women are probably in the majority. They believe in human made climate change because they have noticed the changes taking place around them. These observations are supplemented by the ABC and SBS but not the commercial media. In terms of personality, they thrive on their own ideas rather than conventions and prefer to act on the world rather than change themselves.

Because they believe in their own perceptions, they reject denials of climate change and also arguments that there is no point in doing anything. They put their hope in science and think we should move quickly to clean green power and are primarily acting to be safe. They see the polluting industries as losers from the threat of climate change.

The reverse of this picture shows that the non-believers and non-doers are younger, of lower SES and probably mostly male. They deny the changes taking place around them and use commercial media. They accept many of the claims of the deniers and believe that the media is hyping up the issue. They also accept that there is no point in doing anything at the moment because, for example the international community cannot agree on targets.

Similarly, they are not interested in being safe or taking action as an insurance policy, put little hope in science and do not believe we should be moving quickly to alternative clean energy sources. They see the polluting industries as winners rather than losers. They are also opposite in terms of personality and change their beliefs probably to fit in with their crowd.

A further series of analyses validated the data in the overviews and also showed that there is also a cluster of males with higher SES who believe people always want the best of everything and see the rich and powerful as winners from the threat of climate change.

The level of belief drops as the questions move from belief that climate change is happening, to that it is warming and then to that it is caused by greenhouse gases such as carbon dioxide (CO<sub>2</sub>) and methane. 26% of the total sample do not believe it is caused by greenhouse gases and another 20% are only just convinced. The data shows that the disbelievers have accepted many of the main claims of the deniers including that it is just part of a natural cycle probably caused by the sun, and it is right to be sceptical, as well as

believing the whole thing is being hyped up. Overall, the estimate of believers to 'don't knows' and sceptics or deniers is 56% to 27% to 18%.

The average number of actions being taken is 22 while there are on average another 12 under consideration. Many of the most popular actions revolve around water and basic commonsense behaviours such as turning lights and appliances off. The least popular actions included taking fewer showers a week, eating less fish, having a worm farm and joining a green group. Only a minority has gone solar so far but about another third is considering installing panels or a water heater.

The patterns of action were very different for believers and non-believers. Believers are aiming for self sufficiency and taking a wide range of actions using clean power, getting back to natural products and processes and attempting to persuade others to go green.

The non-believers are totally different, rejecting self sufficiency, clean power etc but they are making changes that indicate basic savings and what now seem habitual behaviour for Australians. They are wedded to their cars and convenience and not being 'greenies'.

The study proposed 6 separate solutions to climate change which fell into two groups. The first consists of an emission trading scheme (ETS), clean coal and new technology and the second consists of individuals reducing pollution, moving quickly to green power and a flat tax on carbon. The first group finds favour with the non-believers and non-action takers while the second is favoured by the believers and doers.

However, in terms of percentages, a majority rejects the ETS, clean coal and almost 50% reject new technology as a solution. The biggest majorities were for individuals doing what they can and moving to green power quickly. A flat tax attracted mainly 'don't knows' as it has been little discussed.

The study validated the effect we noticed in workshops designed to help people understand climate change and take collective action, namely that people these days have difficulty in conceptualizing a future more than a few years away. The 'far distant future' turns out to be in the lifetime of today's children. This means workshops in which people want to get to grips with the future effects of climate change must adopt a phased in approach starting only a few years out and projecting further in easy stages.

Given the results, the report discusses strategies that take their starting points as either working on beliefs or on actions. It is clear that providing information has not worked and will not work to increase the level of belief in climate change. As the believers believe because of their own perceptions, workshops in which community and organizational people share their own perceptions and reach their own conclusions will have more of an impact.

Similarly, if the choice of strategy is to target action directly, it will be effective for people to share what they are collectively doing at home or at work. As the main target group appears to be younger lower SES people, probably mainly males, who often live in a separate subculture, it is important to bring them into workshops of mainstream people. This strategy exploits what has been learnt of their personality characteristics and confirmed social science findings about pressures to conform to groups.

These strategies are not detailed or exhaustive but they are based on the evidence and follow the well established principle that psychological ownership of a course of action is required to generate the motivation to follow it. For interested organizations and communities, it is possible to merge the final questionnaire with other questions established as reliable measures of organizational and community health to help determine their own unique strategies for sustainability.

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## **Beliefs and Actions about Climate Change: Results of a Pilot Segmentation Study**

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This research arose from a series of diverse experiences over three months during which I became less optimistic about our chances of effective action about accelerating climate change, more curious about the real state of knowledge and beliefs about it in the general population and the reasons behind that state of knowledge and belief.

For people to be motivated to fight climate change they must believe that the phenomenon is real and they must be able to conceive of a world in 20 years time. Both sources of motivation appeared to be in doubt. Time is also implicated in many of the denier's arguments. Governments can pass legislation but ultimately it is up to the people as to whether that legislation is effective.

In a workshop at Concordia University in Montreal in June it had become obvious that people simply could no longer conceive of a future more than about 10 years away. This capacity has gradually been lost over the last 40 years. This loss creates real problems for educators and policy makers who are working and planning for 20-30 years time horizons. People cannot be expected to be motivated to take action against something which is literally 'out of their minds' in terms of time and is also likely to be on a scale of devastation which they also cannot currently conceive. Such a situation amounts to a fertile breeding ground for those who have a vested interest in denying climate change and in particular, its origins in green house gas emissions such as carbon dioxide (CO<sub>2</sub>) and methane.

Back in Australia I had conversations in which doubts were expressed about the extent of climate change and its origins. It was immediately obvious that some had been exposed to the charges of climate change deniers. At the same time I had also been sent articles questioning the science by colleagues who while not physical scientists, were intelligent and discerning people. I was also aware from family and friends that many were ignorant of much of the basic science behind climate change and in addition, were approaching the subject from the stance of 'better safe than sorry' – taking action as an insurance policy against something that may happen in the distant future.

A workshop held in Melbourne by Amerin in August could not have provided a more stark contrast. The participants were well informed of the facts of climate change and were enthusiastic about encouraging action in organizations and communities to reduce CO<sub>2</sub> emissions and move towards a more sustainable future.

In this workshop we again tested people's capacity to conceive of a future over a reasonably long time scale by approaching the subject through a two stage process. We first asked them to project a future with climate change over a 10 year time frame and then to extrapolate that out to a 20 year time frame. The 20 year scenarios produced in this manner were much more realistic than those produced in Montreal and showed that there was a solution to the *time* problem of approaching climate change. There are still doubts, however, about the degree to which this was a factor of the participant's belief in the reality of climate change. This question still needs to be tested by further workshops where participants may be less convinced of this reality.

The other questions remained however. How many people really believe that climate change is happening, that we are causing it and why or why not? What are the critical beliefs underlying a belief or not in the reality of CC and that lead to action or non-action. To what extent are the deniers having an effect on these beliefs and what then is an effective strategy

for overcoming this effect? This report goes some way in answering those questions but needs to be followed up by a more substantial survey refined as suggested by these results.

The study takes the form of a market segmentation to enhance the production of effective strategies to combat rising CO<sub>2</sub> emissions. It aims to look systemically at beliefs and action and then isolate the cluster of beliefs that lead to action or not.

It is important to remember that this is simply a pilot of an instrument designed to test purely what factors are determining beliefs and actions about CC. For use in full strategy determination for communities and organizations, it needs to be merged with other questions already tested as determinants of the major factors in organizational and community behaviour.

### **Prior research**

I have been following the gathering evidence for human induced climate change since 1960 and keep up with the acceleration of the changes through journals and the net. This research, therefore, accepts the reality of climate change and the wealth of evidence documenting it. This huge body of data is not reviewed here as the sources such as the Intergovernmental Panel on Climate Change (*IPCC*) reports and popular weekly journals such as *New Scientist* are readily available.

However, anybody interested in climate change will be well aware that there is a substantial and concerted campaign designed to undermine confidence in science in general, the IPCC's reports and the accuracy of data relating to climate change and its causes in particular. "For reasons of vested interest or ideology, a number of people and organisations oppose action on climate change, and there is a sophisticated and well-funded (mis)information and lobbying industry that seeks to promote such views"<sup>i</sup>.

This industry and its campaign is not new as it was actively working around the time of the Rio environmental conference in 1992<sup>ii</sup> but in recent years it appears to have accelerated its activities, particularly as a response to governmental actions to curb green house gases through measures such as emissions trading schemes. It is easy to track through the net and makes no secret of its views although it is far less forthcoming about its sources of financial support. While on the surface there appear to be many separate organizations and individuals offering discrete views and information, it quickly becomes clear that these sources and their experts rely on and quote each other.

Several of these sites<sup>iii</sup> were surveyed to ensure that most facets of the misinformation were covered in the questionnaire. One that was not used was the theory that recent global warming was caused by Jupiter approaching the Earth and Earth is now cooling because Jupiter is moving away.<sup>iv</sup> This does not appear to be in popular current usage and is probably too weird for all except the most dedicated denier. The 'facts' used to debunk the 'myth', 'hoax' or 'conspiracy' of climate change/global warming include:

- The current changes are part of a natural cycle
- The sun and sun spots are the primary forces of climate change
- Some glaciers are growing, therefore, we now have cooling not warming
- CO<sub>2</sub> is an essential nutrient for plant life, the more there is the more plants thrive
- Warming precedes increased levels of CO<sub>2</sub>
- Air contains so little CO<sub>2</sub> that it could not be powerful
- Natural resources are more abundant than ever before

- The planet can cope with high levels of population
- Being green/ environmentalist/ extremist has become a religion
- The media has been captured by the environmentalists/ doomsayers, “fear sells”
- It is right to question and be sceptical

There are several that cast distrust on science in general, e.g:

- Scientists can’t accurately predict the weather in 5 days time so how can they forecast decades ahead?
- Instruments are not accurate or are covered in dust or are in the wrong places
- Climate scientists rely on mathematical models not real observations, etc.

Many of these are contradictory.

Once the questions were drafted, they were tested on a small but diverse local sample. There was significant discussion about some points, particularly those relating to the role of the media and other interests considered to have investments or not in green gas induced change. Several participants asked why the media did not present “both sides of the argument” and suggested that that question should be included. This shows that the deniers are making inroads in Australia and there are echoes in the data presented below.

Australia is certainly being targeted by the deniers. For example, Jay Lehr from the Heartland Institute visited for 15 days in August claiming to have delivered “more than two dozen presentations” of his lecture ‘Sorting fact from fiction on climate change’ across the country in conjunction with the Institute for Private Enterprise and the Australian Climate Science Coalition. He describes his approach as follows:

“When I point out in a couple of different ways that we’re not responsible for the warming and that carbon dioxide is a good thing, not a bad thing, you will obviously recognise the pointlessness of having any legislation. However it isn’t pointless for people that are going to make money out of or gain power out of it. But I hope to give you a package of simple information that each day you can share with people at your dinner table, that you can share in social gatherings like this if you get together and chat, not in a particularly strong science way, but in a manner where you share with people who respect your judgment that you are convinced that man is not responsible for either the ups or downs of the planet. You don’t have to teach science, you plant a seed of doubt in the mind of somebody who respects you and they will rethink the whole thing. So slowly and exponentially, if all of you talk to three dozen people in the course of a year, and some of them talk to three dozen people in turn, very slowly we can turn around public opinion.”

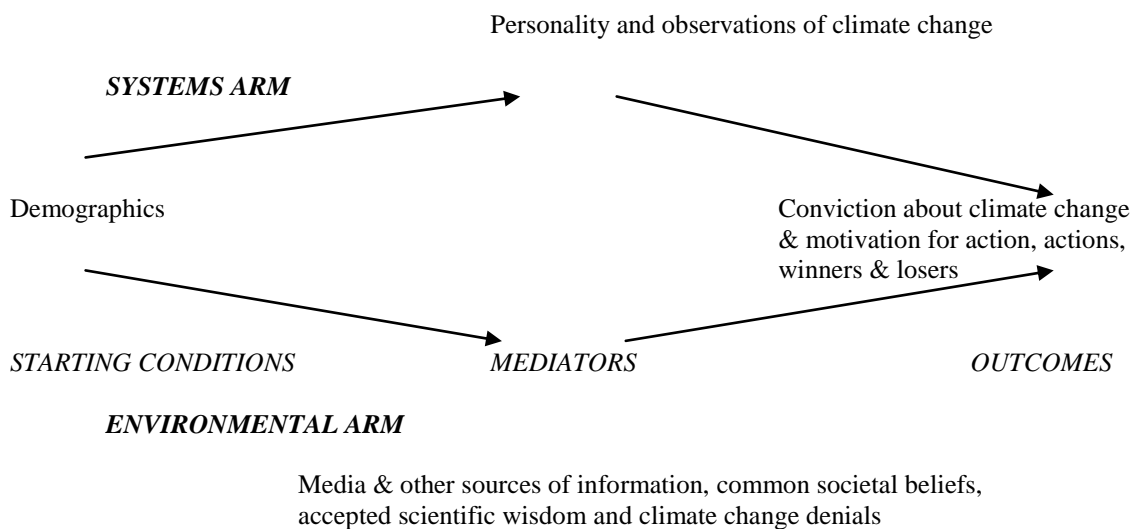
This is a well known tactic included within the strategy of the indirect approach<sup>v</sup> and Lehr claims that there has been an increase from 32-34% to 54% “recognizing the scam” in the USA in the last 5 years.<sup>vi</sup> We can expect an intensification of these efforts as the emissions trading legislation returns to the parliament in November and in the lead up to global negotiations in Copenhagen. This makes an effective strategy to combat these insidious efforts even more necessary.

### **Conceptual design of the study**

In Figure 1, the starting conditions include measures of age, gender and socioeconomic class. The systems arm consists of a measure of personality conceptualized as objective behavioural preferences<sup>vii</sup> and a range of simple first hand and widely reported observations of climate change in the popular media.

The environmental arm consists of mediated sources of information, common societal beliefs, accepted scientific wisdom and climate change denials. There is also a scale that measures where the individual places the effects of climate change in time, from their lifetime to three generations distant.

The outcomes consist of the degree of conviction that climate change is real and happening and the amount of action a person is prepared to take to combat it. It also includes a list of winners and losers from the threat of climate change that could help clarify the degree to which the claims of deniers have been accepted. For example, deniers claim that the winners from the threat of climate change will be greenies, anti-capitalists or ‘socialists’, vegetarians and so forth, the so-called ‘lunatic fringe’. By adopting the socio-ecological perspective and acknowledging that people are purposeful systems open to their various environments, the study covers several of the dimensions critical to deciding to act on climate change. Other important variables are included in other standard Open Systems Theory (OST) instruments that can be merged with the current pilot for a broader study.



**Figure 1: Conceptual Design of the Study**

### Method

First and second drafts were discussed with different groups of family and friends. They included sceptics, deniers, up-to-the-minute informed environmentalists and those who didn't know much about it at all and some who simply couldn't care less. Once the instrument was comprehensive and all language had been checked as being the normal vernacular and accessible to the general public, it was arranged into the form shown in Appendix A. It was delivered to a wide sample of family, friends and colleagues via email and in hard copy. Many first hand recipients then sent it more widely to a further circle. Samples were obtained from around Bacchus Marsh, Bateman's Bay, Byron Bay, Canberra and Melbourne.

Only 4 questionnaires were discarded because of missing data, primarily from lack of completion and for the rest, missing data was not a problem and was simple recoded to the mean.

Given the uncontrolled nature of the sample, it was necessary to introduce controls in order to determine that constructed scales were reliable and not the product of biased demographics. This was achieved in two related steps.

As our societies move further from the recent conventional patterns of employment, it has become more difficult to obtain accurate measures of socioeconomic status (SES). Asking retired employees who now work a few hours a week for social reasons with lowly pay packets, for their current occupational status and income is a totally misleading guide to their SES established through life. It is the latter which is the more likely to determine their attitudes, beliefs and ability to analyze information. The same applies to many young people brought up in wealthy high status homes who are currently studying or working in poorly paid jobs. Students were, therefore, asked to complete their income and occupational status scales according to their mother's or father's ratings, and retirees and the unemployed were similarly asked to complete them for their previous work. SES was then assessed as being the sum of education, income and occupational status. To determine the Latin square design (LSD) sample, SES was split around the mean. Age was split around 40 years, close to Australian median age.

The full sample collected consisted of 87 as shown in the table below. 18 records were by randomly deleted in the categories over-represented. From this an LSD sample was drawn and it was this sample that was used in scale construction and for analysis. This gives confidence that the scales and the results are not actually measuring the effects of gender, age or SES.

<b>Table 1. Composition of full and LSD samples</b>				
	Male		Female	
	Young <40	Old 40+	Young <40	Old 40+
Low SES	18 [12]*	2 [2]	18 [12]	6 [6]
High SES	10 [10]	16 [10]	7 [7]	10 [10]
$X^2 = 7.524$ , d.f. = 3, n.s.				

\*where numbers in brackets are the final sample.

Several scales were constructed *a priori* for specific purposes. The first set was constructed to determine whether the degree of action taken or considered in relation to climate change had a significant relation to conviction about the reality of change, global warming, the effects of greenhouse gases, scepticism and influence of deniers. A straight count was done of the number of actions taken, considered and not considered. A weighted scale of actions considered or taken was calculated as this indicated motivation to action called MotivateDo (see Appendix B). These are rough scales as the question included a 'not applicable' category but the MotivateDo and NotConsider scales proved extremely powerful and an improved version of the question in the final instrument will remove the problem posed by the 'not applicable' category.

Second, a scale was constructed to test the validity of the item "Serious changes, if any, are in the far distant future" and to determine the meaning of the 'far distant future'. People who believe serious changes are generations away are less likely to take radical action today. As we saw in the workshops, many have difficulty today in conceptualizing long timescales so this was a numerical validation of the phenomenon and also a way of estimating what timescale we could reliably expect workshop participants to cope with. The scale called FutureSerious was constructed from Q4, the questions measuring the respondent's perceptions of when and to what extent climate change was going to affect human life from the current generation to three generations ahead (see Appendix B).

Third, a scale of conviction about climate change called BeliefCC was constructed by summing the responses to Q1-3, the degree to which it is happening, warming and caused by greenhouse gases. Apart from predetermined scale construction, other scale construction was determined by causal path analysis.<sup>viii</sup> This form of analysis is an alternative to factor analysis and has many advantages. Details of all scales are provided in Appendix B. All scales for use in the causal path analysis were examined for their reliability (Chronbach Alpha) and percentages and subsequently refined.

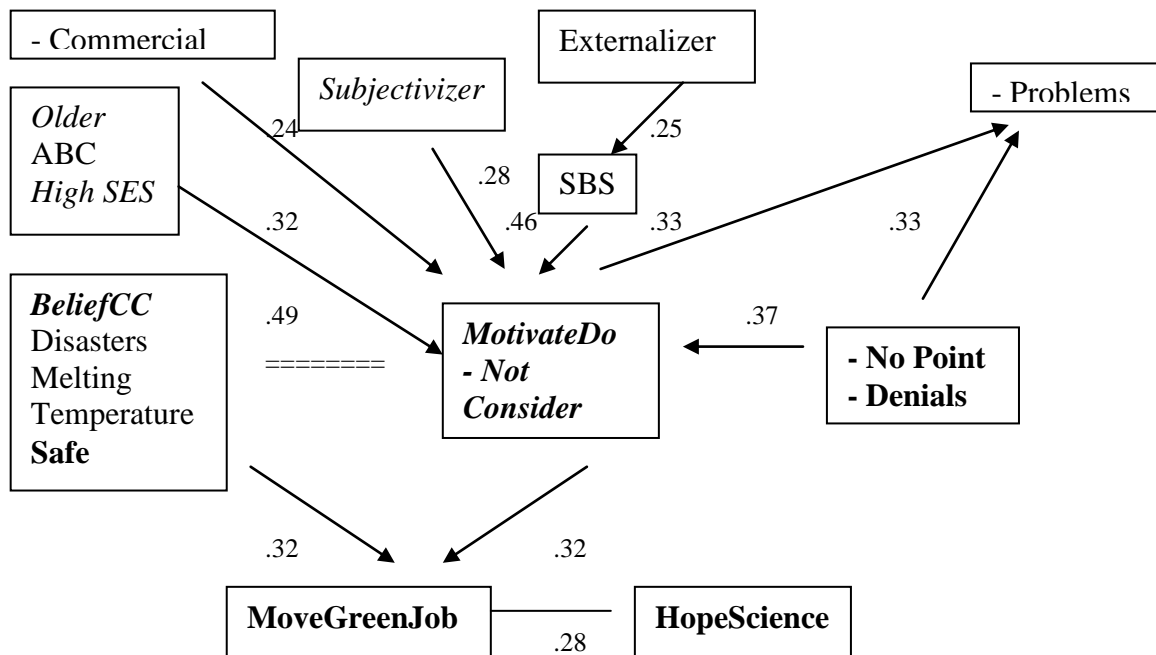
Once scale construction was complete, they were computed for the LSD sample. All scales and remaining individual variables were then entered into a correlation matrix which was analyzed by causal path analysis to yield the causal paths shown as Figures 2a and b. All other statistics were computed as indicated.

### Results

The results fall into several parts. The first is a strategic overview of the internal relationships within the data. Working with all variables yields systemic patterns and avoids the distortions created by taking one variable at a time. *These patterns can be translated into strategies that can be used by organizations and communities to increase their sustainability and reduce the probability of catastrophic climate change.* This is discussed further below.

#### Strategic overview of taking action

The pattern that emerged from the causal path analysis is very clear.



$r=.23 @ p<.05$ ;  $r=.30 @ p<.01$ ;  $r=.38 @ p<.001$

**Figure 2a. Causal Path from the Perspective of Taking Action (from M3)**

The graph is read just like a road map from left to right— follow the arrows which flow from demographics through media sources to beliefs and action. The reasons for taking action

and action outcomes are in bold while the demographics are in italics. The arrows are added by the researcher but as taking action cannot cause age, the direction is logical.

The core of this graph consists of the line across the middle where we see the cluster headed by belief in climate change (CC), the action box of taking action and motivated to do more, together with the reverse of not considering action and the cluster consisting of rejections of the beliefs that there is no point in doing anything and denials that CC is real and man made. The belief box tells us that people who are taking action see change happening around them. Primarily their belief in anthropogenic climate change is influenced by their observations of CC where increased frequency and intensity of disasters such as such as drought, fire, flood etc is the most important of the three scales used. This leads them to want to be safe rather than sorry, to avoid the damaging effects of CC on health, the economy and our standard of living. Their actions are an insurance policy. There is also a component in staying safe that indicates these people believe every individual should do what they can to reduce pollution. Overall, these middle clusters tell us that the people who are taking action are convinced about the reality of human-induced climate change, reject the arguments of the deniers and are playing it safe rather than sorry.

Also feeding into the central cluster of taking action are several demographics and media sources.

These people are older with higher socioeconomic status and are subjective externalizers (SE). This means they are stimulated by their own thoughts and feelings rather than the conventions they see around them. They are also more likely to act on the world rather than change their own behaviour in response to ideas or what they hear around them. Traditionally this behaviour pattern has been associated with males but Australia has many women who are SEs, many more than several other countries. As we see below, gender dropped out of the analysis but a larger sample may well show a preponderance of females.

While they are primarily influenced by their personal observations of CC, they are also influenced by the media, the most powerful of which are the ABC and SBS which they prefer to the commercial media.

Their belief in CC and rejection of the arguments against believing in anthropogenic CC also lead them to believe that we should be moving as quickly as possible to green energy sources which will create more jobs. They also believe that science provides the best hope for answers to CC.

They see the causes of the problem, the coal, oil and energy intensive industries (Problems) as being the losers out of the threat of CC and actions taken to stop it. This means they are confident that their actions and action taken by others will slow the rising emissions and reduce the likelihood of runaway CC.

It is important to also examine what dropped out of this analysis. The beliefs that dropped out are a belief in God and the cluster called WantBest. The latter cluster consists of items indicating the action takers look on the bright side, believe people always want the best of everything and that the media should present both sides of the arguments or and against anthropogenic CC.

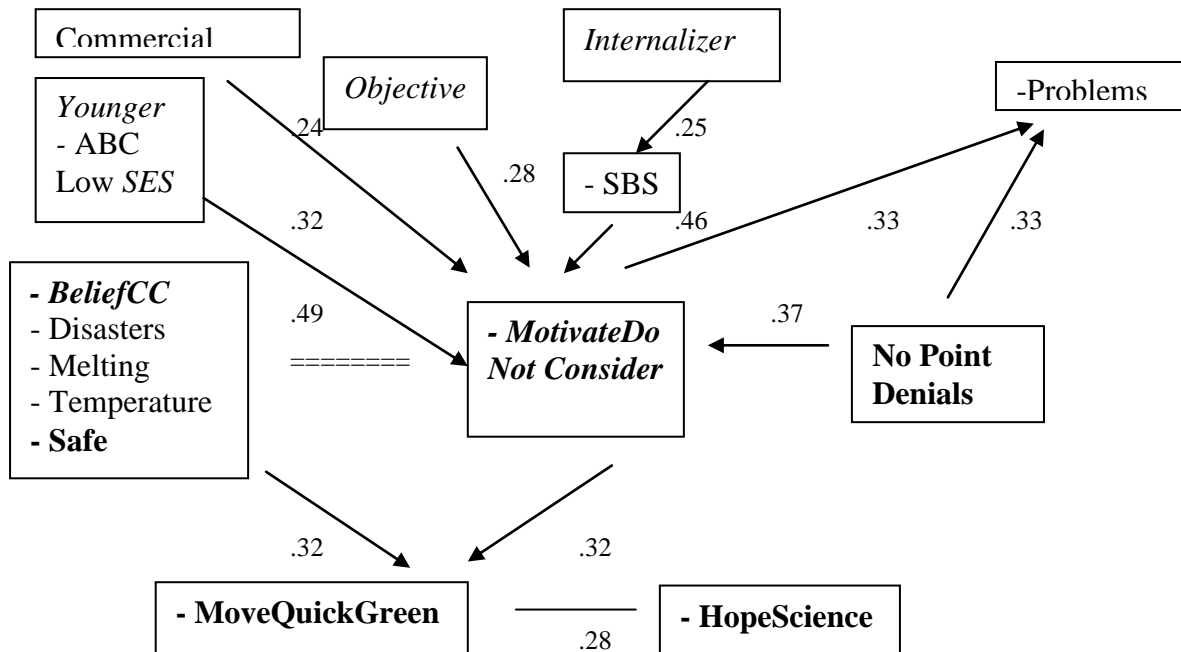
Also dropping out was using written media plus the internet to obtain their news. Also failing to maintain significance were the scales indicating that amongst the winners from the threat of CC were the multinationals, the rich, the banks, several now 'alternative' or 'fringe' groups such as CC advocates, alternative energy industries and greenies in general. In a larger sample, they would also probably have seen the disadvantaged such as rural communities and the poor as ultimate losers.

Overall, the action takers present a very coherent picture of lifestyle, beliefs and perceptions of consequences.

As these graphs are mathematical entities, they can be totally reversed.

### Strategic overview of not taking action

This pattern is the opposite of that presented above.



$r=.23 @ p<.05$ ;  $r=.30 @ p<.01$ ;  $r=.38 @ p<.001$

**Figure 2b. Causal Path from the Perspective of Not Taking Action (from M3)**

In reverse, we see the picture for those not considering taking action. They are younger and lower SES, are objective internalizers (OIs) and use commercial media rather than ABC and SBS. They do not see climatic changes taking place around them, do not believe there is global warming or that it is caused by greenhouse gases. They do not care about being safe and they have accepted the arguments of the deniers together with those arguments that any action will be a waste of time and money. They cannot see any virtue in moving to a green economy and do not put any hope in science to provide answers.

There are some differences that allow us to start considering strategies for influencing the non-believers.

The first is the different dimensions of behavioural preferences or personality. While the believers and doers are those who follow their own ideas rather than the conventions or conventional wisdom they see around them, the non-believers are those who change themselves in response to the beliefs in the world around them. Given some of the other characteristics of this group, it is possible that they are fitting in with the crowd and the crowd they associate with get their news from commercial sources, magazines, newspapers and the internet. Given that this group has lower SES, it is possible that they have been influenced by the denial industry through the internet or tabloids or have friends who have been similarly influenced. Media hype is a significant component of the denials cluster and it

appears common for people who use those sources to be suspicious or sceptical although they continue to use them. It is noteworthy that the commercial media feeds directly into the non-action taking cluster. This leaves little doubt that various sources of news are implicated in these patterns of belief and action along with personality characteristics.

Because the MotivatedDo and NotConsider scales were not completely mirror images although highly correlated ( $r=.83$ ), the matrix was analyzed twice, once leaving out Not Consider and once leaving out Motivate Do to pick up any important differences. The most important was that for the non-believers, the Not Consider scale was right in the same box as the denial of the reality of the changes taking place around them and their lack of belief in CC itself. This means that their rejection of CC and their reluctance to act must be caused by a powerful motivator in order for them to reject the evidence of their senses and general ecological awareness. This is most likely to be their desire to fit into their particular peer group and in the final questionnaire, we will ask about talking to their friends as a source of news. However, these people are young and probably spend more time on their mobiles and games than on noting ecological changes taking place around them. It is probably a sign of the dissociation of the young from their physical environments that they respond in this way.

In contrast, the observations of the older sample and their subsequent belief in CC leads them to reject the denials. There is also a highly significant secondary relationship ( $r=.36$ ), not shown, between this rejection and the observations, belief in CC cluster. Altogether, while the picture for the believers appears coherent, the picture for the non-believers seems discordant.

### Validating data

Each of the major belief and action scales were split into 3 groups,  $\frac{1}{2}$  standard deviation above and below the mean plus the middle group and proportions of gender, age and SES were calculated for the extreme groups. Only age was significant for MotivatedDo, the taking action scale, as the higher proportion of females (57.7%) and higher SES (64%) just failed to reach significance. The figures for the high belief group were similar. Generalizing from these figures, it is the older, higher SES women who are most likely to believe in anthropogenic climate change and to be taking action against it. This is contrary to one overseas survey<sup>ix</sup> and reinforces the need for this survey to be replicated on a national sample. The WantBest scale dropped out of the causal path analysis but the percentages show that it is higher SES males who hold these beliefs. All other variables showed percentages in the same direction as indicated by the causal path analysis. Many of these would have reached significance with slightly bigger numbers in the sample.

Those below and above the mean were compared to show more differences between extreme believers and non-believers (Table 2).

**Table 2. Summary of differences between believers and non-believers**

<i>Believer's Higher</i>	<i>Non-Believer's Higher</i>
Disasters	
Temperature	
Melting	
Watch ABC	
	No point in acting
	Denials
Safe	
Motivated Do	
	NotConsider action

Table 2 confirms the profile of differences between the pictures of those taking action and those not considering taking much action in terms of degree of belief in CC. Both observations and choice of media are critical to acceptance or rejection of CC and the arguments against it.

When media were broken down further into individual sources, the only three that showed significant differences were ABC TV and radio, and commercial TV had the highest differences between believers and non-believers (Table C2 in Appendix C). With a larger sample it is almost certain that more differences are going to appear.

In terms of observations of climatic change, all observations were significantly different between believers and non-believers (Table C3) regardless of whether these changes can be perceived directly or only through media. This indicates that people are taking a blanket approach to climate change, either for or against. We could have expected a more rational approach where personal direct observations of drought and earlier spring flowerings could be acknowledged while remaining sceptical of those phenomena that cannot be observed directly such as increased extinctions. This is not the case. The deniers deny everything.

### Beliefs and about what?

When we examine Qs 1, 2 and 3 we see that while highly correlated there is less conviction about CC as we move from the fact that it is happening (mean=3.91) through that the world is warming (3.88) to the change being caused by greenhouse gases (3.54).

	Happening	Warming	Caused by greenhouse gases
Not at all + a little convinced	15.9%	15.9%	26.0%
Convinced	17.4%	15.9%	20.3%
Very + totally convinced	66.7%	68.1%	53.6%

Table 3 shows that it is the question of cause that is causing the belief problem and while there is still a majority that is convinced about the reality of anthropogenic cause, there is a sizable 26% that simply doesn't believe it. The question is why. Here we look at specific individual items and their implications.

There were 7 items in Q10 that have significant correlations with Q4, caused by greenhouse gases. These are in order:

- Current climate changes are just part of a natural cycle (r= -.55)
- The sun affects climate more than people can (r= -.54)
- Climate change is being hyped up by people who have vested interests in it (r=-.49)
- Climate change is being hyped up by the media (r= -.48)
- Some glaciers are growing (r= -.35)
- Serious effects, if any, are in the far distant future (r= -.33)
- It is right to be sceptical about humans causing climate change (r= -.29)

These are straight out of the denier's bible so to speak. In 2007, Schliebs reported that 40% Australians had doubts about a human cause although 54% said further immediate action was required<sup>x</sup>. Our doubters amount to only 26% of the sample with another 20% sitting on the fence [convinced] as measured above but this is probably the result of slightly different

questions. A survey by the Climate Institute in 2009<sup>xi</sup> found that people see that we should be investing in newer jobs such as those created by the renewable energy industries and that the government should get on with the job. In this sample, 88.4% agreed that “we need to move quickly to green power, e.g. solar/wind”. So while there are plenty of sceptics who may not take action themselves, they do not deny the virtue of moving to clean power.

Both UK and USA sources report that there has been an increase in the activity of the professional disseminating deniers and a corresponding increase in the number of followers or sceptics. In the UK, half believed the media was too “alarmist”<sup>xii</sup> while in this sample, 36.2% believed “climate change is being hyped up by the media”. Belief in warming has reduced in the USA from 71% to 57% as the number of internet pages claiming anthropogenic CC is a hoax doubled in 2008<sup>xiii</sup>. Here we find that 15.9% are definite sceptics about warming with another 15.9% just convinced. Generally our proportion of sceptics or disbelievers appears lower than UK and USA.

This leaves the question of how effective the deniers are being in Australia. The Lowy Institute for International policy recently found that CC is no longer the top policy issue in Australia and has fallen to seventh place out of ten<sup>xiv</sup>, but it is not clear that this is the result of the efforts of the deniers. However, the strength of the seven statements dot pointed above combined with Australian’s normal healthy scepticism, creates a problem for educators and policy makers.

There is another related problem and that is the sample’s strong belief that ‘The media should present both sides of the argument’. 81.1% agreed with this statement. It was spontaneously raised with me in conversation by several people who wanted to know why we never hear the arguments and evidence against anthropogenic CC, warming or against CC in general. Answers such as ‘there is little or no evidence’ are unconvincing when almost everybody has heard of some. Explanations that denials are being manufactured are also unconvincing when they come from people who are known to believe in CC. Such explanations merely add to the scepticism. It may well be that ignoring the deniers is the best strategy and that as more effects of CC are noticed, these deniers will have less effect. However in the mean time, perhaps a more effective strategy may be required. This finding creates even greater difficulties for the current strategy of providing information in order to change beliefs and behaviour.

The size of the believers and non-believers groups was estimated by counting the percentages of the 1+2 and 4+5 on belief items, observations and 1+2 and 3+4 on media sources and averaging them. The believers accounted for 55.67% of the sample, the non-believers 17.62% and the ‘don’t knows’ or fence sitters accounted for 26.71% of the sample. This gives a ratio of roughly 6:3:2 from pro to anti. Given that other recent surveys have found that the deniers are having an increasing effect and a climate change ‘weariness’ seems to have set in even as the data indicates the problem is accelerating, it is vital that new strategies are devised. These are discussed below.

### **What are Australians prepared to do?**

The sample was given a list of 52 simple and common actions they had done or were doing, were considering, not considering or they could mark ‘not applicable’. (If you don’t own a property, you cannot install solar panels). The ‘not applicable’ category means we cannot have an absolutely pure measure of action and motivation to act at the moment but this question has been redesigned in the final version to avoid this problem.

However, despite this small problem, the data shows a clear picture. The mean number of actions taken is 21.55 and 49% are taking less than that while 51% is taking 22 or more of

those actions. The mean number of actions under consideration is 12.32 and 52% are considering fewer than that while 48% are considering more than an additional 12 actions. The mean for actions not being considered is 16.25 and 55% are taking less than 16 while 45% are not considering more than 16 actions. These figures indicate that taking action is generally widespread but there are some people who are taking very many actions while there is a small group of people who are doing relatively little.

Table 4 shows the most popular actions, nothing less than 62%, and the most unpopular and least considered options for behaviour change (nothing more than 14.5%).

<b>Most Done</b>	<b>Least Done</b>	<b>Most Not Considered</b>
Being more careful with water	Joining a green group	Joining a green group
Watering the lawn less often		
Watering the garden less often	Bought or made a worm farm	Bought or made a worm farm
Taking shorter showers		
Recycling more	Apply for green jobs	
		Taking fewer showers per week
Making sure to turn lights off		
Making sure to turn appliances off		
Using green bags rather than plastic	Eating less fish	Eating less fish
Changing to more efficient light globes		
	Bought a carbon offset	Bought a carbon offset
	Using a car pool	
	Bought a solar water heater	
	Bought solar panels	
	Trying to persuade others to go green	

The ‘Least Not Considered’ column is not required as it is identical to the ‘Most Done’ column.

Table 4 shows that there is a heavy concentration on water although the sample drew the line at taking fewer showers per week. Overall, the most popular actions are the very simplest and most common sense savings such as turning lights and appliances off.

The least done and least considered items are joining a green group, having a worm farm, eating less fish and buying a carbon offset. Others are currently not being generally done but are being considered. Buying solar is currently not popular but there are an additional 31.9% considering panels and 29% considering a solar water heater.

There are some differences in orientation to action between believers and non-believers (Table 5).

<b>Table 5. Actions taken more frequently by believers</b>	
<b>Scale</b>	<b>Actions</b>
SelfSuffice	Grow own vegies Water the lawn less Water the garden less Walk more often Wash in cold water Put washing water on the garden Installed solar panels Mulched the garden Planted one or more trees
growSoil	Composting scraps Bought or made a worm farm
Naturally	Buying organic food Buying products with less packaging Eating food in season
CleanPower	Bought green power Bought a solar water heater Using microwave rather than stove Bought a carbon offset
Enthuse	Learn more about CC Trying to persuade others to go green Using public transport more often

The believers are aiming for self sufficiency as much as possible with all actions in the scale discriminating them from the non-believers. This extends to growing and improving their soil as well as trying to get back to natural products and processes (Naturally). Similarly, they are acting on their belief in anthropogenically caused CC by aiming for clean power. In addition, they are attempting to learn more about CC, persuade others about it and doing the generally less popular action of taking public transport. As we see below, the believers do not stand out on the most basic ways of saving both CO<sub>2</sub> and money because these are the actions that non-believers are also taking.

What then are the non-believers or those not prepared to consider a lot of action doing?

A perusal of Table C6 in Appendix C shows that like the believers, the non-believers are also following their beliefs by ignoring the actions that are most closely associated with reduction of emissions and doing only those that either reduce water consumptions or are the most simple ways of saving money. On the scale of Basic Save, a majority of the low action takers are doing 8 out of the 14 actions and about a third are doing 3 others. Most of these actions appear to have become normal everyday habitual behaviours by Australians and the non-action takers are no different in this regard. Like the majority of the sample, they are not going to take fewer showers although they have cut down on the length of their showers. A majority of the non-action takers have also rejected driving only when necessary and investing in sustainable products.

Allied to making some basic savings, the non-action takers are also looking at the long term by putting in a water tank or insulating the house. In terms of self sufficiency, we see again that the non-action takers are concerned about water but are also washing more often in cold water. This however, is more likely to be about saving money than about reducing CO<sub>2</sub>. They are also eating more fresh food rather than canned or frozen but given the pattern that is emerging, this is also more probably about money than CC. The only other action they are

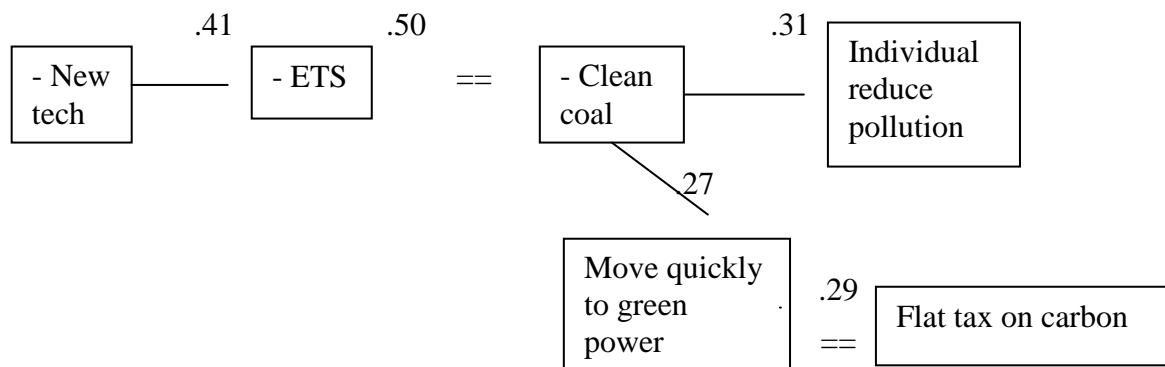
taking is using less bottled water, again probably as a money saver and also because there have been grass roots campaigns about it.

The non-action takers have rejected all sources of clean power, living with more natural products, eating less meat and fish and are certainly doing anything that might identify them as ‘greenies’. In addition, they appear to be dedicated to their cars and driving, rejecting all actions that might impede their driving pleasure or convenience.

The profile of the non-action takers is crystal clear. They do not believe in CC or its anthropogenic causes and consequently are not going to change their life for what they regard as nonsense hyped up by the media and groups with a vested interest in it.

### Beliefs about specific actions by individuals and others

There were 6 specific solutions to CC posed in the questionnaire taken from current debates. Given what we have already learnt, these items are related in a predictable pattern shown in Figure 3.



**Figure 3. Relationships between Proposed Solutions to CC**

Figure 3 shows that new technology, an ETS and clean coal are positively correlated and all three are negatively correlated with individuals doing what they can to reduce CO2 pollution, moving quickly to green energy sources and imposing a flat tax on carbon.

Statement	Correlation of scale with statement*			% total	
	<i>Belief in CC</i>	<i>Motivated Do</i>	<i>Not Consider</i>	<i>Disagree</i>	<i>Agree</i>
The carbon emissions trading scheme will solve any emission problem	-.39	-.36	.29	53.62	11.59
Clean coal will fix any climate change	-.36	-.33	.31	65.22	5.80
New technology will fix climate change	-.32	-.17	.25	44.93	20.29
Every individual should do what they can to reduce pollution	.36	.31	-.37	5.80	88.41
There should be a flat tax on carbon	.32	.16	-.26	14.49	28.99
We need to move quickly to green power	.32	.16	-.26	5.80	88.41

\* correlations of .23 and above are significant

The first thing we note in Table 6 is that belief in CC or not and the degree of action associated with it is correlated with the two groups of statements as seen above in Figure 3. The ETS, clean coal and new tech are favoured by those not taking action, the sceptics, while

they are rejected by the believers and the doers. The pattern is reversed for the second three statements relating to individual action, the flat tax and moving quickly to green power.

This could possibly explain positions taken on current political debates but when we look at the percentages in the right hand two columns we see that the figures provide cold comfort for government and opposition, and particularly national party, alike. The political winner here is the Green party. A majority have no faith in either an ETS or clean coal and 45% also have no faith in any form of new technology.

Conversely, almost everybody agrees that we should move to green power as quickly as possible and everybody should reduce their pollution. These are blindingly obvious solutions that go beyond beliefs. Given the recent debacle of the GFC, it should come as no surprise that people have no faith in a market based solution such as the ETS. Clearly our young, lower SES people also have a healthy scepticism about the effectiveness of market mechanisms. Even those who score below the mean on 'Belief CC' were split 57% against and 43% for the ETS.

The question of a flat tax attracted a major response of 'don't know' as it has received little attention. However, more of both low and high believers were for rather than against a flat tax. Overall, these figures show that Australians want simple direct measures that have a chance of solving the problem rather than complicated measures that have not been proven and/or rely on murky market mechanisms. Most people have shown that they are prepared to do their bit simply and directly. They expect their politicians to similarly shape up.

### Winners and losers from the threat of climate change.

These questions were asked because many of the high profile deniers are scornful or downright derogatory of people who are attempting to care for the planet and/or those who criticize 'capitalism' or competition. Some ridicule people such as vegetarians while others characterize the alternative energy industries as born losers. The intent is to convince the audience that the world will continue as is and attempting to make change is silly. Given the possibility that the deniers are having an effect, the hypothesis was that belief systems would affect the ways in which such groups as the capitalists, the disadvantaged and the alternatives were perceived.

The belief systems are having an effect as the following table 7 shows but the effect is generally not strong as many people who have not thought about CC struggled with the questions.

**Table 7. Correlations\* between interest groups as winners or losers, actions and beliefs**

	Belief CC	Motivate do	Move quick green	Not consider	Denials	No point	Believe in God	Want best
Rich	.04	.03	-.06	-.08	.17	.03	.13	<b>.33</b>
Banks	-.06	.15	-.04	-.13	.22	-.02	.12	<b>.30</b>
Coal industry	-.18	<b>-.49</b>	-.11	<b>.22</b>	<b>.32</b>	.10	<b>.25</b>	-.03
Energy intensive industries	<b>-.30</b>	<b>-.27</b>	-.18	<b>.30</b>	<b>.56</b>	<b>.26</b>	.18	-.01
Big oil	-.13	-.16	<b>-.30</b>	.09	<b>.28</b>	.04	.02	-.02
CC advocates	-.03	<b>.23</b>	.01	-.04	.01	-.05	-.04	.13
Alternative energy industries	.12	<b>.23</b>	.16	-.16	<b>-.27</b>	-.19	.10	.16

\*correlations of .23 and above are significant.

Only those groups for whom significant correlations were found are shown in Table 7 and for these groups the pattern is clear. The columns headed Belief CC, Motivate Do [high action] and Move Quick Green, one of the scales containing arguments for CC, show that the

high believers and doers see the CO2 emitters as losers and the alternatives as winners. The scales called Safe and Hope Science showed no significant correlations but the pattern is the same as for Move Quick Green.

The scales which contain all the arguments against CC, Not consider [low action], Denials and No Point (in doing anything), show that the sceptics and non-doers see the CO2 emitters as winners and the alternative energy industries as losers. Those that believe in God also show the same pattern. The column headed Want Best shows that the people who look on the bright side, believe humans always act out of self interest and want the best of everything see the rich and powerful as winners.

This means that the beliefs about CC are certainly affecting perceptions of various interest groups involved and will almost certainly affect their future behaviour in regard to these groups.

There was one other very interesting finding coming out of the correlation analysis. As we saw in the discussion of the causal path, a strong cluster emerged consisting of the multinationals, rich and banks, the media and the Alternatives. This cluster means that believers see that big business, multinationals, global industries such as finance, the rich, governments particularly in developed countries are going green and will work with those who have previously been seen as ‘alternatives’ to lower the threat of CC. The believers are obviously optimistic that it will be in the interests of the international business community and the rich to reduce the threat of extreme CC. The correlations were not strong enough to make it through to the final picture but a larger sample will probably confirm this finding.

### Where is the ‘far distant future’?

Q4 in the questionnaire attempted to answer this question by juxtaposing conviction about CC with time frame for effects. A scale was constructed (see Appendix B) from these responses (FutureSerious) and compared to the answer to the statement in Q10, ‘Serious changes, if any, are in the far distant future’. The scales are correlated ( $r=.26, p<.03$ ) as expected. A subsample of those agreed that changes are in the far distant future were tabled against their responses to Q4.

<b>Table 8. When. Far distant future compared with effect through generations</b>	
	<b>Very &amp; totally convinced of effects</b>
Your life	23.5%
Children’s lives	64.7%
Grand children’s lives	64.7%
Great grandchildren’s lives	58.2%

Table 8 shows that the majority sees the effects of CC showing up in their children’s lives. This means they see the ‘far distant future’ as just a generation or less away. This confirms our observations from the workshops that increasingly, people have difficulty in conceptualizing long term frames and special measures must be taken to help this conceptualization. Talking about 2030 or 2050 is going to mean nothing to people who see the ‘far distant future’ as occurring in just a few years.

### Strategies

In order to increase the level of action designed to reduce the threat of runaway CC, the data makes it clear that one can target either belief systems or action. The most popular strategy adopted so far seems to be providing information to increase belief. The problem with this strategy is that unfortunately, information does not change beliefs or behaviour. If it

did, we would all be slim and healthy and there would be no behaviour such as drink driving or domestic violence. Information theory is a theory failed.

The data indicate clearly that those who believe in climate change and are taking most action are those who are keen observers of the world around them. Their own perceptions are telling them that things are now far from normal or how they used to be. They add to this the media reports of such phenomena as glaciers melting and reach their conclusions.

Our workshop data also tells us that the perceptions of others listed in a collective brainstorm carry more weight than just media reports that inspire suspicion on the part of the non-believers. Australians historically are a sceptical bunch and the data indicate that this baseline of scepticism is operating in relation to climate change regardless of other factors. Workshops in which communities or organizations share their perceptions and reach their own conclusions are likely to be more effective at changing beliefs than pouring more information into the non-believer's heads. If the deniers are having an effect, it is time to counteract this by injecting honest, public perceptions of the changes taking place around them into the debate.

Acting directly on people's propensity to take action is another strategy that is suggested by the data. Even those not inclined to take action because of CC are making some basic changes to their lifestyle and it looks as if these are economically motivated or have simply become habitual because of such pressures as water restrictions.

In community workshops, people could also discuss what they are doing at home and the savings they have made through such changes. People become very uncomfortable when they see they are in a minority<sup>xv</sup> and attempt to conform to the group. A recent report from the American Psychological Association confirms that they appear not to have changed since 1952<sup>xvi</sup>. The report found that people want to fit in with their neighbours.

There are other strategies suggested by the data but they are less feasible to implement. How does one convince people, especially those who are hung up on the celebrity cult or titillation and entertainment more generally, to change the channel to the ABC or SBS?

This study suggests that the major target group in terms of both belief and taking action is younger, lower SES males. They are enjoying their lives, their cars and their luxuries such as the heater and the air conditioner and generally have little or no experience of real hardship or the necessity of keeping your eyes and ears open to the real world around you.

As many of our young people are segregated into a subculture that engages in risky behaviour such as binge drinking, communicates extensively both face to face and by electronic gadgets and spends significant amounts of time playing electronic games or watching TV, they have little time to experience the environment first hand or even their close communities. Some feel alienated from their families. The most obvious strategy is to find those who straddle both the subculture and the mainstream and invite them to workshops that re-unite the two. Their behavioural preferences indicate that they will be likely to change their behaviour in response to what they hear around them and group dynamics will do the rest.

These strategies are not detailed or exhaustive. They are merely suggestive as befits a pilot study. Final strategies can only be devised when the questions discussed here are merged with others designed specifically for organizations and communities. The best strategies are also those devised by the people who have to live with the outcomes, that is the people in the organizations and communities themselves. It is only when there is psychological ownership of a course of action that there is high motivation to pursue it.

## Appendix A. Pilot and Final Questionnaires

### A1. Pilot questionnaire

Dear Participant,

I am testing a questionnaire to measure people's attitudes towards climate change. It is vital to understand how public opinion is coming together around the many issues involved in possible climate change and the actions that people are or are not prepared to take to deal with it. Your views are important whether or not you believe climate change is happening and whether or not you believe it is caused by the emission of large quantities of green house gases such as carbon dioxide and methane.

Please answer all the questions by marking the number that is right for you. This is a draft for testing only. Your responses will help determine a final questionnaire that can be used more widely. If you have any comments or suggestions for additional questions, please add them in at the end. To see properly, set all margins to 2.54 cm except bottom which is 1.5 cm.

Thank you

Merrelyn Emery (memery9@bigpond.com)

Q1. How convinced are you that climate change is happening?

Not at all convinced	A little convinced	Convinced	Very convinced	Totally convinced
1	2	3	4	5

Q2. How convinced are you that there is global warming?

Not at all convinced	A little convinced	Convinced	Very convinced	Totally convinced
1	2	3	4	5

Q3. How convinced are you that climate change is caused by greenhouse gases such as carbon dioxide and methane?

Not at all convinced	A little convinced	Convinced	Very convinced	Totally convinced
1	2	3	4	5

Q4. How convinced are you that climate change is going to affect?

	Not at all convinced	A little convinced	Convinced	Very convinced	Totally convinced
Your life	1	2	3	4	5
Your children's lives	1	2	3	4	5
Your grand children's lives	1	2	3	4	5
Your great grand children's lives	1	2	3	4	5

Q5. How often do you use the following sources to get the news?

	Not at all	Occasionally	Frequently	Whenever possible
ABC TV	1	2	3	4
SBS TV	1	2	3	4
Commercial TV	1	2	3	4
Pay TV	1	2	3	4
Magazines	1	2	3	4
ABC radio	1	2	3	4
SBS radio	1	2	3	4
Commercial radio	1	2	3	4
Newspapers	1	2	3	4
Internet	1	2	3	4

Q6. To what extent do you think the following things are actually different from normal?

	Not different from normal at all	Very little different from normal	Don't know	Somewhat different from normal	Definitely different from normal
Length and frequency of droughts	1	2	3	4	5
Intensity of bushfires	1	2	3	4	5
Height and frequency of floods	1	2	3	4	5
Summer temperatures	1	2	3	4	5
Winters temperatures	1	2	3	4	5
Glaciers melting	1	2	3	4	5
Height of sea level	1	2	3	4	5
Poor harvests	1	2	3	4	5
Animals becoming extinct	1	2	3	4	5
Intensity of storms	1	2	3	4	5
Number of refugees arriving	1	2	3	4	5
Time of spring flowers	1	2	3	4	5
Bleaching of coral reefs	1	2	3	4	5

Q7. To what extent are you concerned that climate change will?

	Not concerned at all	Only a little concerned	Concerned	Very concerned	Extremely concerned
Hurt human health and wellbeing	1	2	3	4	5
Reduce our standard of living	1	2	3	4	5

Q8. Thinking generally about how you feel about being in certain situations, which action would you usually prefer to take, either the action at the left or right hand end of the line, for example:

Making sure that the heart ruled the head

**OR**

Making sure that the head ruled the heart

Would you would very much prefer this, or only slightly prefer it?

	<i>Very much prefer</i>	<i>Slightly prefer</i>	<i>Don't know which I prefer</i>	<i>Slightly prefer</i>	<i>Very much prefer</i>	
Make sure that the heart ruled the head	1	2	3	4	5	Make sure that the head ruled the heart
Be concerned with people's feelings	1	2	3	4	5	Be logical
Show pity, sympathy	1	2	3	4	5	Use foresight
Share your feelings	1	2	3	4	5	Be convincing
Take a bit of a chance	1	2	3	4	5	Keep both feet on the ground
Find new ways of doing things	1	2	3	4	5	Do things the way you know
Come up with new ideas	1	2	3	4	5	Just use your common sense
Make allowances for unconventional appearances and behaviour	1	2	3	4	5	Just follow the conventions of appearance and behaviour like everyone else

Q9. What changes have you made or are making or considering in relation to climate change?

	Not applicable	Not considering it	Am considering it	Have done or are doing it
Being more careful with water	1	2	3	4
Making sure to turn lights off	1	2	3	4
Growing your own vegies	1	2	3	4
Watering the lawn less often	1	2	3	4
Watering the garden less often	1	2	3	4
Checking the energy efficiency of new appliances	1	2	3	4
Joining a green group	1	2	3	4
Eating more vegetables	1	2	3	4
Driving only when necessary	1	2	3	4
Turned the thermostat or heater down	1	2	3	4
Walking more often	1	2	3	4
Eating less fish	1	2	3	4
Turned the air conditioner down	1	2	3	4
Buying recycled paper	1	2	3	4
Buying less bottled water	1	2	3	4
Washing clothes more often in cold water	1	2	3	4
Buying organic food	1	2	3	4
Buying products with less packaging	1	2	3	4
Eating food in season	1	2	3	4
Making sure to turn appliances off	1	2	3	4
Taking fewer showers per week	1	2	3	4
Eating less meat	1	2	3	4
Put in a water tank	1	2	3	4
Using public transport more often	1	2	3	4
Putting water from washing machine onto the garden	1	2	3	4
Doing the washing less frequently	1	2	3	4
Changing to more efficient light globes	1	2	3	4
Taking shorter showers	1	2	3	4
Bought solar panels	1	2	3	4
Driving more slowly	1	2	3	4
Eating food grown locally	1	2	3	4
Riding the bike more often	1	2	3	4
Using a car pool	1	2	3	4
Mulched the garden	1	2	3	4
Bought a more fuel efficient car	1	2	3	4
Insulated your house	1	2	3	4
Eating fresh food instead of canned or frozen	1	2	3	4
Bought green power	1	2	3	4
Recycling more	1	2	3	4
Composting scraps	1	2	3	4
Checking car tyres more often	1	2	3	4
Bought or made a worm farm	1	2	3	4
Applying for green jobs	1	2	3	4
Investing in sustainable products	1	2	3	4
Planted one or more trees	1	2	3	4
Bought a bike	1	2	3	4
Using green bags instead of plastic	1	2	3	4
Bought a solar water heater	1	2	3	4
Using microwave rather than stove	1	2	3	4
Changed heating or cooking from electric to gas	1	2	3	4
Learning more about climate change	1	2	3	4
Trying to persuade others to go green	1	2	3	4
Bought a carbon offset	1	2	3	4

Q10. How strongly do you agree or disagree with the following statements?

	Strongly disagree	Disagree	Don't know	Agree	Strongly agree
Climate change is being hyped up by the media	1	2	3	4	5
Evolution is the best explanation of the past	1	2	3	4	5
It is human nature to be competitive	1	2	3	4	5
The carbon emissions trading scheme will solve any emissions problem	1	2	3	4	5
The international community will never agree on targets to reduce emissions	1	2	3	4	5
Every individual should do what they can to reduce pollution	1	2	3	4	5
It is better to be safe than sorry	1	2	3	4	5
It is right to be sceptical about humans causing climate change	1	2	3	4	5
There is increasing evidence of global cooling	1	2	3	4	5
There is no point in us doing anything when bigger countries do nothing	1	2	3	4	5
Clean coal will fix any climate change	1	2	3	4	5
Reducing carbon emissions will cost too many jobs	1	2	3	4	5
I am a very spiritual person	1	2	3	4	5
Climate change will destroy our economy	1	2	3	4	5
Climate change is being hyped up by people who stand to gain from it	1	2	3	4	5
We should not put our faith in science	1	2	3	4	5
The Western industrialized world is over consuming	1	2	3	4	5
Current climate changes are just part of a natural cycle	1	2	3	4	5
New technology will fix climate change	1	2	3	4	5
Cooperation achieves more than competition	1	2	3	4	5
Serious changes, if any, are in the far distant future	1	2	3	4	5
I believe in God	1	2	3	4	5
Going green will create many new jobs	1	2	3	4	5
The sun affects climate more than people can	1	2	3	4	5
You can't stop progress	1	2	3	4	5
Some glaciers are growing	1	2	3	4	5
People always act out of self interest	1	2	3	4	5
Science is our best hope for answers	1	2	3	4	5
I always look on the bright side of things	1	2	3	4	5
We need to move quickly to green power, e.g. solar/wind	1	2	3	4	5
There should be a flat tax on carbon	1	2	3	4	5
More carbon dioxide will help plants grow	1	2	3	4	5
There are too many people on the planet	1	2	3	4	5
We can always fix problems if we put our minds to it	1	2	3	4	5
Only a handful of scientists argue that greenhouse gases are not causing climate change	1	2	3	4	5
It is human nature to want the best of everything	1	2	3	4	5
The media should present both sides of the argument	1	2	3	4	5
Going green costs too much	1	2	3	4	5

Q11. Do you see the following groups as winners or losers from the threat of climate change?

	Big losers	Losers	Don't know	Winners	Big winners
Big business	1	2	3	4	5
Climate change researchers	1	2	3	4	5
Rural communities	1	2	3	4	5
The poor	1	2	3	4	5
The government	1	2	3	4	5
Animal liberationists	1	2	3	4	5
Politicians	1	2	3	4	5

Do you see the following groups as winners or losers from the threat of climate change? **continued**

	Big losers	Losers	Don't know	Winners	Big winners
Families	1	2	3	4	5
The insurance industry	1	2	3	4	5
Agribusiness	1	2	3	4	5
The media	1	2	3	4	5
The coal industry	1	2	3	4	5
Climate change advocates	1	2	3	4	5
Multinationals	1	2	3	4	5
Developing countries	1	2	3	4	5
The rich	1	2	3	4	5
Organic farmers	1	2	3	4	5
Energy intensive industries e.g. aluminium	1	2	3	4	5
Developed countries	1	2	3	4	5
Alternative energy industries, e.g. solar	1	2	3	4	5
Bankers	1	2	3	4	5
Vegetarians	1	2	3	4	5
Big cities	1	2	3	4	5
Genetic researchers	1	2	3	4	5
Big oil	1	2	3	4	5
Greenies	1	2	3	4	5
International finance industry	1	2	3	4	5
Workers	1	2	3	4	5

Q12. Are you:

Male

1

Female

2

Q13. How old are you?

<i>Less than 20</i>	<i>20-29</i>	<i>30-39</i>	<i>40-49</i>	<i>50-59</i>	<i>60-69</i>	<i>70 plus</i>
1	2	3	4	5	6	7

Q14. What is your highest educational achievement?

<i>Some high school</i>	<i>School certificate</i>	<i>Higher school certificate</i>	<i>After school certificate or diploma</i>	<i>University first degree</i>	<i>Higher degree</i>
1	2	3	4	5	6

***If you are a student and have no real income and/or haven't had a job, please answer the next two questions as they apply to your mother or father. If you are retired or unemployed, please answer for your previous work.***

Q15. What is your personal income per year before tax?

<i>Less than \$20,000</i>	<i>\$20-29,999</i>	<i>\$30-39,999</i>	<i>\$40-49,999</i>	<i>\$50-59,999</i>	<i>\$60-69,999</i>	<i>\$70-79,999</i>	<i>\$80-89,999</i>	<i>\$90-99,999</i>	<i>\$100,000 plus</i>
1	2	3	4	5	6	7	8	9	10

Q16. In which general category did or do you mainly work?

<i>Unskilled</i>	1	<i>Administrative</i>	5
<i>Semi-skilled</i>	2	<i>Paraprofessional/ Technical</i>	6
<i>Skilled</i>	3	<i>Managerial</i>	7
<i>Clerical/Sales</i>	4	<i>Professional/ Senior Executive</i>	8

If you have any comments or suggestions, please write them in. **THANK YOU**

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## A2. Final questionnaire

Q1. How convinced are you that climate change is happening?

Not at all convinced	A little convinced	Convinced	Very convinced	Totally convinced
1	2	3	4	5

Q2. How convinced are you that there is global warming?

Not at all convinced	A little convinced	Convinced	Very convinced	Totally convinced
1	2	3	4	5

Q3. How convinced are you that climate change is caused by greenhouse gases such as carbon dioxide and methane?

Not at all convinced	A little convinced	Convinced	Very convinced	Totally convinced
1	2	3	4	5

Q4. To what extent do you think the following things are actually different from normal?

	Not different from normal at all	Very little different from normal	Don't know	Somewhat different from normal	Definitely different from normal
Length and frequency of droughts	1	2	3	4	5
Intensity and frequency of bushfires	1	2	3	4	5
Height and frequency of floods	1	2	3	4	5
Summer temperatures	1	2	3	4	5
Winters temperatures	1	2	3	4	5
Glaciers melting	1	2	3	4	5
Height of sea level	1	2	3	4	5
Poor harvests	1	2	3	4	5
Animals becoming extinct	1	2	3	4	5
Intensity and frequency of storms	1	2	3	4	5
Time of spring flowers	1	2	3	4	5
Bleaching of coral reefs	1	2	3	4	5

Q5. To what extent are you concerned that climate change will?

	Not concerned at all	Only a little concerned	Concerned	Very concerned	Extremely concerned
Hurt human health and wellbeing	1	2	3	4	5
Reduce our standard of living	1	2	3	4	5

Q6. How strongly do you agree or disagree with the following statements?

	Strongly disagree	Disagree	Don't know	Agree	Strongly agree
Climate change is being hyped up by the media	1	2	3	4	5
Evolution is the best explanation of the past	1	2	3	4	5
The carbon emissions trading scheme will solve any emissions problem	1	2	3	4	5

The international community will never agree on effective targets to reduce emissions	1	2	3	4	5
Every individual should do what they can to reduce pollution	1	2	3	4	5
It is better to be safe than sorry	1	2	3	4	5
It is right to be sceptical about humans causing climate change	1	2	3	4	5
There is increasing evidence of global cooling	1	2	3	4	5
There is no point in us doing anything when bigger countries do nothing	1	2	3	4	5
Clean coal will fix any climate change	1	2	3	4	5
Reducing carbon emissions will cost too many jobs	1	2	3	4	5
Climate change will destroy our economy	1	2	3	4	5
Climate change is being hyped up by people who stand to gain from it	1	2	3	4	5
We should not put our faith in science	1	2	3	4	5
The Western industrialized world is over consuming	1	2	3	4	5
Current climate changes are just part of a natural cycle	1	2	3	4	5
New technology will fix climate change	1	2	3	4	5
Cooperation achieves more than competition	1	2	3	4	5
Serious changes, if any, are in the far distant future	1	2	3	4	5
I believe in God	1	2	3	4	5
Going green will create many new jobs	1	2	3	4	5
The sun affects climate more than people can	1	2	3	4	5
Science is our best hope for answers	1	2	3	4	5
I always look on the bright side of things	1	2	3	4	5
We need to move quickly to green power, e.g. solar/wind	1	2		4	5
There should be a flat tax on carbon	1	2	3	4	5
There are too many people on the planet	1	2	3	4	5
Many scientists do not believe that greenhouse gases are causing climate change	1	2	3	4	5
It is human nature to want the best of everything	1	2	3	4	5
The media should present both sides of the argument	1	2	3	4	5
Nuclear power will solve any emissions problem	1	2	3	4	5
Going green costs too much	1	2	3	4	5

Q7. Do you see the following groups as winners or losers from the threat of climate change?

	Big losers	Losers	Don't know	Winners	Big winners
The poor	1	2	3	4	5
The coal industry	1	2	3	4	5
Climate change advocates	1	2	3	4	5
Multinationals	1	2	3	4	5
Rural communities	1	2	3	4	5
The rich	1	2	3	4	5
Energy intensive industries e.g. aluminium	1	2	3	4	5
Alternative energy industries, e.g. solar	1	2	3	4	5
Bankers	1	2	3	4	5
Oil industry	1	2	3	4	5
Greenies	1	2	3	4	5

Q8. What changes have you made in your life in the last few years or are considering? If for example you would like to put in a water tank but can't because you don't own the property, please answer 'Would do if I could'.

	Not considering it	Considering it	Would do if I could	Have done it
Put in a water tank	1	2	3	4
Changed anything from electric to gas	1	2	3	4
Planted one or more trees	1	2	3	4
Joined a green group	1	2	3	4
Turned the thermostat or heater down	1	2	3	4
Turned the air conditioner down	1	2	3	4
Insulated your house	1	2	3	4
Moved closer to your work	1	2	3	4
Mulched the garden	1	2	3	4
Bought a carbon offset	1	2	3	4
Bought or made a worm farm	1	2	3	4
Bought a solar water heater	1	2	3	4
Bought a more fuel efficient car	1	2	3	4
Bought green power	1	2	3	4
Bought solar panels	1	2	3	4
Bought a bike	1	2	3	4

Q9. What other changes are you making or considering?

	Not considering it	Considering doing it	Would do if I could	Doing it
Growing your own vegies	1	2	3	4
Checking the energy efficiency of new appliances	1	2	3	4
Eating more vegetables	1	2	3	4
Driving only when necessary	1	2	3	4
Walking more often	1	2	3	4
Eating less fish	1	2	3	4
Buying recycled paper	1	2	3	4
Buying less bottled water	1	2	3	4
Washing clothes more often in cold water	1	2	3	4
Buying organic food	1	2	3	4
Buying products with less packaging	1	2	3	4
Eating food in season	1	2	3	4
Making sure to turn appliances off	1	2	3	4
Taking fewer showers per week	1	2	3	4
Eating less meat	1	2	3	4
Using public transport more often	1	2	3	4
Putting water from washing machine onto the garden	1	2	3	4
Doing the washing less frequently	1	2	3	4
Driving more slowly	1	2	3	4
Eating more locally grown food	1	2	3	4
Riding the bike more often	1	2	3	4
Using a car pool	1	2	3	4
Eating fresh food instead of canned or frozen	1	2	3	4
Composting scraps	1	2	3	4
Checking car tyres more often	1	2	3	4
Investing in sustainable products	1	2	3	4
Using microwave oven more	1	2	3	4
Learning more about climate change	1	2	3	4
Trying to persuade others to go green	1	2	3	4

Q10. Thinking generally now about how you feel about taking action, which action would you prefer to take in **most** situations, either the action at the left or right hand end of the line, for example:

Making sure that the heart ruled the head

**OR**

Making sure that the head ruled the heart

Would you would very much prefer this, or only slightly prefer it?

	<i>Very much prefer</i>	<i>Slightly prefer</i>	<i>Don't know which I prefer</i>	<i>Slightly prefer</i>	<i>Very much prefer</i>	
Make sure that the heart ruled the head	1	2	3	4	5	Make sure that the head ruled the heart
Be concerned with people's feelings	1	2	3	4	5	Be logical
Show pity, sympathy	1	2	3	4	5	Use foresight
Share your feelings	1	2	3	4	5	Be convincing
Take a bit of a chance	1	2	3	4	5	Keep both feet on the ground
Find new ways of doing things	1	2	3	4	5	Do things the way you know
Come up with new ideas	1	2	3	4	5	Just use your common sense
Make allowances for unconventional appearances and behaviour	1	2	3	4	5	Just follow the conventions of appearance and behaviour like everyone else

Q11. How often do you use the following sources to get the news?

	Not at all	Occasionally	Frequently	Whenever possible
ABC TV	1	2	3	4
SBS TV	1	2	3	4
Commercial TV	1	2	3	4
Pay TV	1	2	3	4
Magazines	1	2	3	4
ABC radio	1	2	3	4
SBS radio	1	2	3	4
Commercial radio	1	2	3	4
Newspapers	1	2	3	4
Talking to friends	1	2	3	4
Internet	1	2	3	4

Q12. Are you:

Male

Female

Q13. How old are you?

<i>Less than 20</i>	<i>20-29</i>	<i>30-39</i>	<i>40-49</i>	<i>50-59</i>	<i>60-69</i>	<i>70 plus</i>
1	2	3	4	5	6	7

*If you are young and still at school or university and have no real income and/or haven't had a job, please answer the next three questions as they apply to your mother or father.*

*If you are retired or unemployed or gone back to education after working, please answer the income and work questions for your previous main work.*

Q14. What is your highest educational achievement?

<i>Some high school</i>	<i>School certificate</i>	<i>Higher school certificate</i>	<i>After school certificate or diploma</i>	<i>University first degree</i>	<i>Higher degree</i>
1	2	3	4	5	6

Q15. What is your personal income per year before tax?

<i>Less than \$20,000</i>	<i>\$20-29,999</i>	<i>\$30-39,999</i>	<i>\$40-49,999</i>	<i>\$50-59,999</i>	<i>\$60-69,999</i>	<i>\$70-79,999</i>	<i>\$80-89,999</i>	<i>\$90-99,999</i>	<i>\$100,000 plus</i>
1	2	3	4	5	6	7	8	9	10

Q16. In which general category did or do you mainly work?

<i>Unskilled</i>	1	<i>Administrative</i>	5
<i>Semi-skilled</i>	2	<i>Paraprofessional/ Technical</i>	6
<i>Skilled</i>	3	<i>Managerial</i>	7
<i>Clerical/Sales</i>	4	<i>Professional/ Senior Executive</i>	8

## Appendix B. Constructed Scales

Table B1. Scale Construction				
Scale	Components	Variable No.	Alpha old	Alpha new
OUTCOMES: BeliefCC	Happening+warming+gases	2+3+4		
MotivateDo	All actions done x 2 + all considered	From 42-94		
NotConsider	All actions not considered	From 42-94		
BELIEFS: HopeSci.	Evolution +SciHope+flat tax	96+122+125	.54	.54
SpiritGod	<b>Spiritual</b> +believe God	107+116		
NoPointPlus	Targets +future+ <b>progress</b> +costs	99+115+119+132	.70	.70
WantBest	<b>Self interest</b> +brightSide+best+bothsides	121+123+130+131	.53	.60
MoveQuickGreen	<b>Competitive</b> +moreJobs+moveQuick	97+117+124	.54	.55
Safe	Health +standardLife+individual+safe+economy	32+33+100+101+108	.71	.71
Denials	MediaHype+ETS+sceptical+cooling+noPoint+clean Coal+costJobs+hype+faithSci+consumeR*+natural +newTech+coopR+sun+ <b>glaciersGrow+CO2</b> +disag reeR	95+98+102+103+104+105+106 +109+110+111+112+113+114+ 118+120+126+129	.85	.86
NEWS SOURCE: ABC	ABC TV + radio	9+14		
SBS	SBS TV + radio	10+15		
Com	Commercial TV+Pay TV +Comm radio	11+12+16	.47	.47
Read	Magazines +newspapers+internet	13+17+18	.60	.60
OBSERVATIONS:				
Temperature	Summer+winter	22+23	.87	.87
Melting	GlaciersMelt+seaRise	24+25	.82	.82
Disasters	Drought+fire+flood+harvest+extinct+storms+spring +coral	19+20+21+26+27+28+30+31	.92	.92
Observations	Sum of above			
ACTIONS: Basic save	WaterCare+lightsOFF+lightglobes+recycPaper+dri veLess+showerLess+moreVegies+bags+newApps+r ecycMore+shortShower+heaterDown+appsOFF+in vest	42+43+47+49+50+51+55+61+6 2+68+69+80+85+88 44+45+46+52+57+66+70+75+8 6		
SelfSuffice	GrowVegies+lawnLess+gardenless+walkMore+was hCold+WashGard+solarPanels+mulch+trees	48+53+63 58+59+60		
SeriousGreen	JoinGreen+fishless+meatLess	71+76+82		
Naturally	Organic+packageLess+foodSeason	72+78		
SavePetrol	DriveSlow+efficCar+tyres	81+83		
GoodFood	foodLocal+foodFresh	54+56+67		
GrowSoil	Compost+wormfarm	64+77		
LessLuxury	AirconDown+bottleLess+washLess	65+92+93		
LongTerm	waterTank+insulate	73+87		
Enthused	PubTransport+learnMore+persuade	79+89+90+94		
SubstituteBike	bikeMore+boughtBike			
CleanPower	GreenPower+solarWater+Micro+offset			
WIN/LOSE: GlobalBoss	<b>BigBus+Govt+pollies</b> +multiNats+rich+ <b>Developed C</b> +banks+ <b>bigCities+financeInd</b>	133+137+139+146+148+151+1 53+155+159	.81	.83
Sus	<b>CCResearch+media</b>	134+143	.72	-
Disadvantage	RuralComms+poor+ <b>families+agriBus+developing C+workers</b>	135+136+140+142+147+160 141+144+150+157	.86	.89
Problems	<b>Insurance</b> +Coal+EnergyIntense+BigOil	138+146+149+152+154+156+1 58	.66	.66
Alternatives	<b>Animallib</b> +CCAdvocates+ <b>OrganicFarm</b> +AltEner gy+ <b>Vegies+GenResearchers</b> +Greenies		.78	.79
FUTURE SERIOUS	Scale from 5, your's; 6, child's; 7, grandchild's; 8, GGchild's: All 4+5=1; 4+5↓3=2; 4+5↓-1+2=3; All 3=4; 3↓1+2=5; 3↑4+5=6; 1+2↑4+5=7; 1+2↑3=8; All 1+2=9			
<b>Set scales &amp; standard test</b>				
Internalizer-externalizer (IE)		34+35+36+37		
Subjectizer-objectivizer (SO)		38+39+40+41		
Socioeconomic status (SES)	Education+Income+OccStatus	163+164+165		

\*R indicates variable was reversed. Items in bold have not present in the final version.

### Appendix C. Detailed results.

Table C1. Test of means for demographics and all scales by low and high belief in climate change							
Scale Name	Belief Low		Belief High		Levene's Test	d.f.	Sig
	Mean	S.D.	Mean	S.D.			
<i>Demographics</i>							
Age	3.42	1.84	3.42	1.63	ns	43	Ns
SES	13.74	5.30	15.62	4.02	ns	43	Ns
IE	13.47	4.83	13.96	3.47	ns	43	Ns
SO	10.84	4.36	9.58	4.07	ns	43	Ns
<i>Observations</i>							
Disasters	24.74	6.36	37.77	4.41	ns	43	.000
Temperature	5.42	1.84	6.69	1.35	ns	43	.000
Melting	6.00	1.97	9.31	0.74	.013	21.69	.000
<i>News Source</i>							
ABC	3.84	2.01	5.27	2.09	ns	43	.026
SBS	2.58	0.84	3.27	1.51	ns	43	Ns
Commercial	5.32	1.73	5.92	1.90	ns	43	Ns
Read	6.26	1.63	7.23	2.32	ns	43	Ns
<i>Beliefs</i>							
NoPoint	12.21	2.32	9.96	2.90	ns	43	.008
Denials	49.47	6.12	35.04	7.09	ns	43	.000
Safe	15.05	3.36	20.42	2.82	ns	43	.000
SpiritGod	5.79	2.66	5.62	2.25	ns	43	Ns
HopeScience	9.89	2.45	10.46	2.25	ns	43	Ns
Wantbest	14.63	2.14	15.12	3.28	ns	43	Ns
MoreGreenJobs	11.32	1.73	12.00	2.02	ns	43	Ns
<i>Actions Total</i>							
MotivatedDo	45.53	14.47	61.15	14.57	ns	43	.001
NotConsider	21.79	7.04	11.77	5.21	ns	43	.000
<i>Actions</i>							
Enthuse	7.63	1.57	9.77	1.86	ns	43	.000
Basic Save	45.05	6.72	47.65	4.61	ns	43	Ns
Naturally	8.26	1.88	9.54	1.61	ns	43	.019
GoodFood	6.32	1.49	6.85	1.22	ns	43	Ns
GrowSoil	5.00	1.20	5.96	1.51	ns	43	.027
SavePetrol	8.26	2.02	8.08	2.13	ns	43	Ns
SubstituteBike	4.95	1.61	5.50	1.50	ns	43	Ns
CleanPower	9.58	1.46	11.38	2.40	ns	43	.006
LongTerm	5.95	1.64	6.04	2.03	ns	43	Ns
LessLuxury	8.16	2.29	9.50	2.53	ns	43	ns
SelfSuffice	25.21	5.80	28.50	5.19	ns	43	.052
SeriousGreen	7.11	1.73	7.69	2.00	ns	43	ns
<i>Win/Lose</i>							
GlobalBosses	29.47	3.10	29.12	6.28	ns	43	ns
Sus	7.47	1.50	7.77	1.50	ns	43	ns
Disadvantaged	14.89	4.27	15.15	5.91	ns	43	ns
Alternatives	24.11	3.81	24.81	4.87	ns	43	ns

	Belief Low		Belief High		Levene's test	d.f.	Sig
	Mean	S.D.	Mean	S.D.			
<b>Specific media</b>							
ABC TV	2.11	1.15	2.77	1.07	ns	43	.05
Commercial TV	2.16	.83	2.73	.96	ns	43	.043
ABC radio	1.74	1.20	2.50	1.21	ns	43	.035
All other media non sig							

	Belief Low		Belief High		Levene's test	d.f.	Sig
	Mean	S.D.	Mean	S.D.			
<b>Specific observations</b>							
Drought	3.16	.96	4.46	.58	.019	27.56	.000
Fire	3.32	1.20	4.65	.49	.000	22.297	.000
Flood	3.05	1.08	4.380	.64	ns	43	.000
Summer temps	2.74	1.05	4.42	.64	.014	27.80	.000
Winter temps	2.68	.95	4.27	.87	ns	43	.000
Glaciers	3.21	1.08	4.85	.37	ns	43	.000
Sea level	2.79	1.13	4.46	.58	.012	24.92	.000
Harvests	3.37	1.07	4.15	.73	ns	43	.005
Extinctions	2.95	.91	4.27	.83	ns	43	.000
Storms	3.11	1.10	4.35	.69	ns	43	.000
Spring time	2.84	.60	4.00	1.06	.016	40.91	.000
Coral bleach	2.95	.97	4.50	.76	ns	43	.000

Scale	Gender				Age				SES			
	Male		Female		< 30 years		40+ years		Low		High	
	N	%	N	%	N	%	N	%	N	%	N	%
<b>MotivateDo</b>												
low	13	52.0	11	42.3	15	62.5	7	31.8	12	63.2	9	36.0
High	12	48.0	15	57.7	9	37.5	15	68.2*	7	36.8	16	64.0
<b>beliefCC</b>												
low	13	48.1	11	40.7	11	39.3	11	50.0	11	50.0	9	37.5
High	14	51.9	16	59.3	17	60.7	11	50.0	11	50.0	15	62.5
<b>Safe</b>												
low	13	54.2	12	42.9	9	39.1	13	56.5	9	52.9	13	52.0
High	11	45.8	16	57.1	14	60.9	10	43.5	8	47.1	12	48.0
<b>Move quick</b>												
low	13	56.5	13	54.2	11	50.0	13	61.9	10	62.5	9	40.9
High	10	43.5	11	45.8	11	50.0	8	38.1	6	37.5	13	59.1
<b>HopeSci</b>												
low	8	40.0	9	40.9	10	50.0	7	36.8	7	38.9	7	46.7
High	12	60.0	13	59.1	10	50.0	12	63.1	11	61.1	8	53.3
<b>Not consider</b>												
low	10	45.5	11	50.0	12	48.0	7	50.0	5	31.3	13	61.9
High	12	54.5	11	50.0	13	52.0	7	50.0	11	68.8	8	38.1
<b>Denial</b>												
low	11	42.3	14	60.9	13	50.0	10	52.6	7	41.2	16	61.5
High	15	57.7	9	39.1	13	50.0	9	47.4	10	58.8	10	38.5
<b>No point</b>												
low	12	57.1	11	57.9	10	47.6	12	70.6	7	43.8	14	87.5
High	9	43.9	8	42.1	11	52.4	5	28.4	9	56.3	2	12.5
<b>Want best</b>												
low	7	31.8	17	65.4	12	50.0	10	52.6	12	66.7	8	34.8
High	15	68.2	9	34.6*	12	50.0	9	47.4	6	33.3	15	65.2*
<b>God</b>												
low	12	54.5	15	53.6	11	45.8	14	58.3	13	76.5	11	47.8
High	10	45.5	13	46.4	13	54.2	10	41.7	4	23.5	12	52.2

\*tested by  $X^2$  and significant at  $p < .05$

**Table C5. Actions taken, considered and not considered for total sample**

Action	Not considered		Considered		Done or Doing	
	N	%	N	%	N	%
Being more careful with water	1	1.4	13	18.8	55	79.7
Making sure to turn lights off	3	4.3	9	13.0	57	82.6
Growing your own vegies	24	34.8	23	33.3	14	20.3
Watering the lawn less often	4	5.8	3	4.3	47	68.1
Watering the garden less often	4	5.8	5	7.2	49	71.0
Checking the energy efficiency of new appliances	12	17.4	25	36.2	32	46.4
Joining a green group	47	68.1	12	17.4	10	14.5
Eating more vegetables	15	21.7	15	21.7	36	52.2
Driving only when necessary	17	24.6	23	33.3	32	46.4
Turned the thermostat or heater down	11	15.9	23	33.3	32	46.4
Walking more often	17	24.6	22	31.9	30	43.5
Eating less fish	45	65.2	11	15.9	9	13.0
Turned the air conditioner down	11	15.9	17	24.6	25	36.2
Buying recycled paper	12	17.4	24	34.8	31	44.9
Buying less bottled water	10	14.5	11	25.9	37	53.6
Washing clothes more often in cold water	13	18.8	14	20.3	41	59.4
Buying organic food	31	44.9	23	33.3	15	21.7
Buying products with less packaging	16	23.2	24	34.8	29	42.0
Eating food in season	14	20.3	22	31.9	33	47.8
Making sure to turn appliances off	4	5.8	22	31.9	43	62.3
Taking fewer showers per week	40	58.0	9	13.0	20	29.0
Eating less meat	36	52.2	15	21.7	13	18.8
Put in a water tank	15	21.7	24	34.8	21	30.4
Using public transport more often	31	44.9	12	17.4	23	33.3
Putting water from washing machine onto the garden	19	27.5	18	26.1	23	33.3
Doing the washing less frequently	26	37.7	14	20.3	28	40.6
Changing to more efficient light globes	4	5.8	6	8.7	56	81.2
Taking shorter showers	7	10.1	15	21.7	47	68.1
Bought solar panels	24	34.8	22	31.9	8	11.6
Driving more slowly	35	50.7	15	21.7	11	15.9
Eating food grown locally	19	27.5	23	33.3	27	39.1
Riding the bike more often	25	36.2	20	29.0	11	15.9
Using a car pool	35	50.7	15	21.7	9	13.0
Mulched the garden	13	18.8	11	15.9	30	43.5
Bought a more fuel efficient car	18	26.1	26	37.7	17	24.6
Insulated your house	10	14.5	12	17.4	34	49.3
Eating fresh food instead of canned or frozen	13	18.8	18	26.1	38	55.1
Bought green power	25	36.2	23	33.3	13	18.8
Recycling more	8	11.6	12	17.4	49	71.0
Composting scraps	22	31.9	17	24.6	25	36.2
Checking car tyres more often	30	43.5	16	23.2	15	21.7
Bought or made a worm farm	46	66.7	13	18.8	10	14.5
Applying for green jobs	39	56.5	11	15.9	7	10.1
Investing in sustainable products	31	44.9	20	29.0	17	24.6
Planted one or more trees	20	43.5	19	27.5	25	36.2
Bought a bike	36	52.2	9	13.0	23	33.3
Using green bags instead of plastic	5	7.20	13	18.8	51	73.9
Bought a solar water heater	35	50.7	20	29.0	2	2.90
Using microwave rather than stove	29	42.0	8	11.6	29	42.0
Changed heating or cooking from electric to gas	25	36.2	12	17.4	23	33.3
Learning more about climate change	12	17.4	20	29.0	37	53.6
Trying to persuade others to go green	34	49.3	13	18.8	22	31.9
Bought a carbon offset	45	65.2	15	21.7	9	13.0

**Table C6. Percentage of those scoring above the mean on scale Not Consider action by specific actions**

Scale	Action	Do	Consider	Total	Not consider	Consider
<i>Basic save</i>	Careful with water	70.79	25.81	96.60		
	Turn lights off	70.79	19.35	90.14		
	Turn appliances off	45.16	41.94	87.10		
	Shorter showers	53.15	25.81	78.96		
	Fewer showers				74.19	9.68
	Eat more vegies	46.43	21.43	67.86		
	More efficient light globes	75.86	13.79	89.65		
	Recycle more	54.84	19.35	74.19		
	Use green bags	67.74	22.58	90.32		
	Drive only when necessary				55.56	29.63
	Invest in sustainable products				70.97	19.35
	Check efficiency of new appliances	29.03	41.94	70.97	29/03	
	Turn heater down	27.59	44.83	72.42	27.59	
	Buy more recycled paper	29.03	45.16	74.19	25.81	
<i>Self suffice</i>	Water garden less	82.14	10.71	92.85		
	Water lawn less	85.19	7.41	92.6		
	Wash more in cold	46.67	20.00	66.67		
	Grow own vegies				41.38	41.94
	Walk more often				45.16	32.26
	Put wash water on garden				46.43	32.14
	Solar panels				60.00	28.00
	Mulch garden				45.83	16.67
	Planted one or more trees				39.29	28.57
	<i>Serious green</i>	Join green group				83.87
Eat less fish					82.76	6.90
Eat less meat					76.92	11.54
<i>Naturally</i>	Buy organic food				61.29	25.81
	Eat food in season				41.94	25.81
	Buy products with less packaging				35.48	41.94
<i>Save petrol</i>	Drive more slowly				78.57	14.29
	Use a car pool				74.07	11.11
	Buy fuel efficient car				37.93	34.48
	Check car tyres more often				75.86	13.79
<i>Good food</i>	Eat food grown locally				48.39	19.35
	Eat fresh instead of canned or frozen	45.16	25.81	70.97		
<i>Grow soil</i>	Compost scraps				44.83	20.69
	Worm farm				74.19	16.13
<i>Less luxury</i>	Turn aircon down				36.00	44.00
	Doing washing less often				63.33	10.00
	Less bottled water	46.15	26.92	73.07		
<i>Long term</i>	Put in water tank	29.63	40.74	70.37	29.63	
	Insulate house	59.26	14.81	74.07		
<i>Substitute bike</i>	Bought bike				70.97	6.45
	Ride bike more often				55.56	33.33
<i>Clean power</i>	Bought green power				62.96	29.63
	Solar water				76.92	19.23
	Use microwave instead of stove				51.72	6.90

	Changed anything from electric to gas				51.85	11.11
	Bought carbon offset				87.10	6.45
<i>Enthuse</i>	Use public transport more often				66.67	20.00
	Learn more about CC				35.48	41.94
	Persuade others to go green				80.65	12.90

<sup>i</sup> p24 of Shepherd, John. (2009). Do mention the ‘G’ word. *New Scientist*, 15 September, 24-25.

<sup>ii</sup> See Global Warming and Other Environmental Myths: The Economic Consequences of Fact vs Media Perception by Dixy Lee Ray, 1992. *American Institute for Economic Research*.

<sup>iii</sup> The Cato Institute; [www.conspiracyarchive.com](http://www.conspiracyarchive.com) ; [www.skepticsglobalwarming.com](http://www.skepticsglobalwarming.com) ; [www.clubconspiracy.com](http://www.clubconspiracy.com); [www.intelligentdesigntheory.com](http://www.intelligentdesigntheory.com); [www.humanevents.com](http://www.humanevents.com); [www.globalwarminghysteria.com](http://www.globalwarminghysteria.com); [www.ourcivilisation.com](http://www.ourcivilisation.com)

<sup>iv</sup> The Discovery Institute

<sup>v</sup> Sun Tzu, *The art of war*; Hart, L. (1946). *The strategy of the indirect approach*. London: Faber and Faber; Hart, Liddell. (1943). *Thoughts on war*. London: Faber and Faber.

<sup>vi</sup> [www.globalwarmingheartland.org](http://www.globalwarmingheartland.org)

<sup>vii</sup> Emery, F. E., & Emery, M. (1980). *Domestic market segments for the telephone*. Melbourne: PA Consulting Services; Emery, M. (1999). *The open systems personality test: validity, reliability and consistency*. Unpublished.

<sup>viii</sup> Emery, F. E. (1976). Causal path analysis. In F. E. Emery (Ed.) (1981). *Systems thinking Vol. 1*. (pp. 293-298) Harmondsworth: Penguin.

<sup>ix</sup> Survey conducted by the Pew Institute reported in *Monbiot.com*. Death Denial. 2.11.2009.

<sup>x</sup> Schliebs, Mark. Australians taking action on climate change: survey. *News.com*, 2.10.2007.

<sup>xi</sup> ABC News online. 9.3.2009.

<sup>xii</sup> BBC News online. Climate scepticism more common. 10.9.09.

<sup>xiii</sup> Monbiot.com, as above.

<sup>xiv</sup> Perry, Michael. AlertNet. Thomson Reuter Foundation. 4.11.2009.

<sup>xv</sup> Asch, Solomon E. 1952. *Social psychology*, chapter 16, Group forces in the modification and distortion of judgements. Prentice-Hall, NY, pp450-501.

<sup>xvi</sup> Gettler, Leon. 2009. The delicate psychology circling climate change. *The Age, Business Day*, 11.11.09, p17