1 Appendix A – Proposed Questionnaire

This session contains the proposed questionnaire.

1.1 Worldviews

Read each statement and decide whether you agree or disagree with each statement as follows:
1=Disagree Strongly,2=Disagree Moderately,3=Neither Agree nor Disagree,4=Agree Moderately, 5=Agree Strongly
(There are no right or wrong answers so do not spend too much time deciding on an answer. The first thing that comes to mind is probably the best response)

1. The environment is fragile and will only be protected if there are large changes in human behaviour and society [__]
2. The environment can be managed by the government and experts if there are clear rules about what is allowed[__]
3. The environment can adapt to changes and technology will solve environmental problems eventually [__]
4. The environment is unpredictable and we can't control what happens [__]

1.2 Preference for scientific communication

Which of the following statements best matches your view (*please tick **one** box***):**

I like when information is presented:
1. in a simplified, condensed and intuitive manner ☐
2. in a very comprehensive form, so I can understand and check most details ☐

Which of the following statements best matches your view (*please tick **one** box***):**

During a presentation, a competent person should:
1. be able to explain difficult things in a very simple manner. ☐
2. spend a lot of time to explain a difficult issue. ☐

Which of the following statements best matches your view (*please tick **one** box***):**

A scientific presentation should:
1. show the main results in an entertaining way, without too many dull and tedious technical details ☐
2. be informative and fairly detailed; I am interested in understand how some results have been obtained, how reliable they are and their level of uncertainty ☐

1.3 Cognitive styles

Read each statement and decide whether you agree or disagree with each statement as follows:
1=Disagree Strongly,2=Disagree Moderately,3=Neither Agree nor Disagree,4=Agree Moderately, 5=Agree Strongly
(There are no right or wrong answers so do not spend too much time deciding on an answer. The first thing that comes to mind is probably the best response)

1. People should always consider evidence that goes against their beliefs [__]
2. I like to find out why things happen [__]
3. I don't like situations that are uncertain [__]
4. It’s enough for me that someone gets the job done; I don’t care how or why it works [__]
5. A person should always consider new possibilities when managing a natural resource? [__]
6. When trying to solve a problem I often see so many possible options that it's confusing [__]

7. When thinking about a problem, I consider as many different opinions on the issue as possible [__]
8. I don't like to go into a situation without knowing what I can expect from it [__]
9. I believe that loyalty to one's ideals and principles is more important than open-mindedness [__]
10. It's ok to be undecided about some things [__]
11. I dislike unpredictable situations [__]
12. When I am confused about an important issue, I feel very upset [__]
13. I dislike questions which could be answered in many different ways [__]
14. Changing your mind is a sign of weakness [__]
15. I like to have the responsibility of handling a situation that requires a lot of thinking [__]
16. I like to spend a lot of time and energy thinking about something related to a decision I need to make [__]
17. When considering most conflict situations, I can usually see how both sides could be right [__]
18. I like to do things that I've learned well over and over, so that I need to think less about them [__]
19. When faced with a problem I usually see the one best solution very quickly [__]
20. The notion of thinking abstractly is appealing to me [__]
21. Mostly, we already know most we need to know to solve the problems we face [__]
22. Wise people make fast decisions [__]
23. If I think longer about a problem I will be more likely to solve it [__]
24. Abandoning a previous belief is a sign of strong character [__]
25. I become uncomfortable when the rules in a situation are not clear [__]
26. Certain beliefs are just too important to abandon no matter how good a case can be made against them [__]
27. Considering too many different opinions often leads to bad decisions [__]
28. I believe that laws and social policies should change to reflect the needs of a changing world [__]
29. In most social conflicts, I can easily see which side is right and which is wrong [__]
30. I always see many possible solutions to problems I face [__]
31. I do not usually consult many different opinions before forming my own view [__]
32. Intuition is the best guide in making decisions [__]

1.4 Cognitive reflection test

Please answer the following questions

1. A bat and a ball together cost 110 cents. The bat costs 100 cents more than the ball. How much does the ball cost? [__]

2. If it takes 5 machines 5 min to make 5 widgets, how long would it take 100 machines to make 100 widgets? [__]

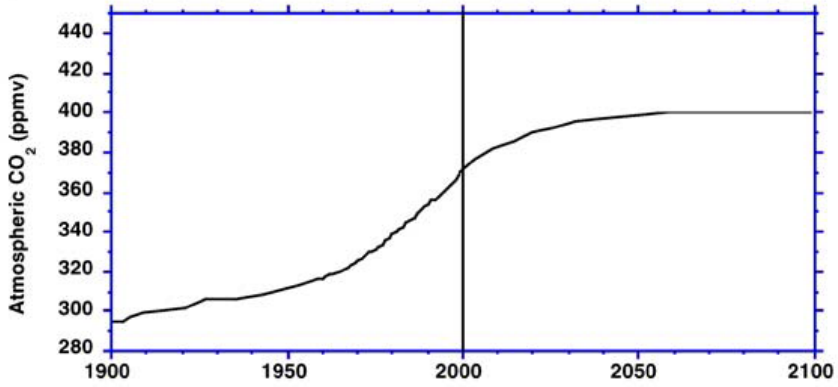
3. In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake? [__]

1.5 System Dynamics: stocks and flows (taken from (Sterman, 2008)).

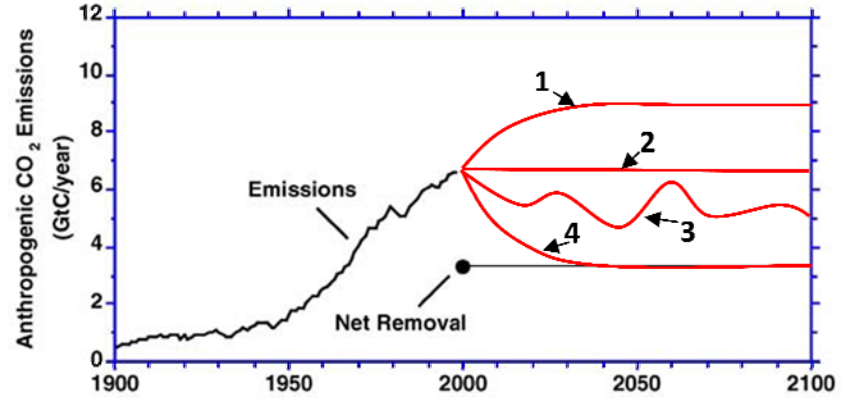
The Intergovernmental Panel on Climate Change (IPCC) has stated that carbon dioxide (CO_2) and other greenhouse gas emissions are contributing to global warming.

The amount of CO_2 in the atmosphere is affected by natural processes and by human activity. CO_2 emissions resulting from human activity have been growing since the start of the industrial revolution. Natural processes gradually remove CO_2 from the atmosphere (e.g. plant life taking up CO_2). Currently this rate of removal of CO_2 is approximately half the rate at which CO_2 is added to the atmosphere and consequently concentrations have increased from preindustrial levels.

Now consider a scenario in which the concentration of CO_2 in the atmosphere gradually rises to 400 parts per million, which is about 8% higher than the level in 2000, and then stabilises by the year 2100, as shown here:



The graph below shows CO_2 emissions from human activities. The black dot shows the rate at which CO_2 is removed from the atmosphere in 2000. The 4 red curves (labelled 1-4) show 4 alternative emission trajectories between 2000 and 2100.



Assuming the rate of CO_2 removal remains constant (as shown by the horizontal line extending between years 2000 to 2100), which of the 4 red curves could produce the CO_2 concentration graph above?
1 [_] 2 [_] 3 [_] 4 [_]

1.6 Attitude towards Science

1. I strongly believe in science[__]
2. I believe Science can provide solutions to environmental problems [__]
3. I do not believe Science can provide solutions to social problems [__]
4. Science has caused more problems than it has resolved [__]
5. I am reluctant to use technology (including computers and models) to address complex natural and social problems [__]

1.7 Attitude towards complexity

1. Simple approaches are best when solving complex issues [__]
2. The best way to address a very complex problem is by breaking it down into small parts [__]
3. I prefer avoid complex problems if I can [__]
4. I enjoy addressing complex problem [__]
5. I think that there is limit to understanding complex problems [__]
6. The vast majority of social and environmental problems we face are very complex [__]
7. The world around us is simple; humans make it difficult [__]

Which of the following statements best matches your view (*please tick **one** box***):**

Certain issues are so complicated because:

8. they need a lot of information to be properly understood ☐
9. we have not understood them yet, otherwise they would look much simpler ☐

1.8 Attitude towards computer models

Which of the following statements best matches you (*please tick **one** box***):**

1. I do not know what computer modelling is ☐
2. I have a rough idea of what computer modelling is ☐
3. I have seen computer modelling at work or its results in some occasions ☐
4. I am familiar with computer modelling ☐

Read each statement and decide whether you agree or disagree with each statement as follows:
(*please state, for <u>each</u> item, whether you 1=Disagree Strongly, 2=Disagree Moderately, 3=Neither Agree nor Disagree, 4=Agree Moderately, 5=Agree Strongly)*

1. I trust the results of computer models [__]
2. The results of computer models can help taking decision about important matters [__]
3. Using computer models can teach how real systems work [__]
4. Using computer models is like toying; its result cannot be taken too seriously [__]
5. I would like to learn how to use computer modelling [__]
6. Computer modelling will become more and more common in the future [__]

1.9 Trust & Information

1. When something is very complicated, I am happy for experts to deal with it [__]
2. I trust very knowledgeable people more than less knowledge ones [__]
3. I trust scientists [__]
4. I trust most people responsible for making decision which affect my life [__]
1. We all need information to form our opinion about environment and social problems; how much do you trust the information provided by:

    - Scientists [__]
    - Environmental organisations [__]
    - Federal Government [__]
    - Local Government [__]
    - Family and friends [__]
    - Your doctor [__]
    - People from your community [__]
    - Television, Newspapers & Internet
    - Books & other publications

1.10 Attitude towards the environment

1. I am personally committed to preventing environmental problems [__]
2. I am personally committed to improving environmental problems [__]
3. Environmental problems are not as important as many other problems facing the world today [__]

4. I am concerned about environmental problems because of the potential consequences on
   (*please state, for <u>each</u> item, whether you 1=Disagree Strongly, 2=Disagree Moderately, 3=Neither Agree nor Disagree, 4=Agree Moderately, 5=Agree Strongly)*
   My wealth [_] My lifestyle [_] My health [_] My community [_] The World [_]

1.11 Census data

Please indicate your age
What is your gender?
☐ Female ☐ Male
Please select the category which best describes your occupation
☐ Government ☐ Private business ☐ Research ☐ Education ☐ Others