

Online Resource 2

- Article Title: Effect of the discussion frame on finding a compromise: A group decision experiment about removed soil management in Japan
- Journal: Environmental management
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- Description: Participants answered these questionnaires (Questionnaire 1 and Questionnaire 2) starting on the next page before and after the discussion.

Questionnaire 1

- Experimental ID: _____
- Grade: _____
- Faculty: _____
- Age: _____
- Gender: male, female, neither/would prefer not to answer
- Place of origin prefecture and municipality: _____

1. Do you think the following items are good or bad?

Please select the number closest to your current opinion.

	Question	I think it's bad.				I think it's good.
		←				→
(1)	Final disposal should be done outside of Fukushima Prefecture.	1	2	3	4	5 6
(2)	Final disposal should be done within Fukushima Prefecture.	1	2	3	4	5 6
(3)	Recycling of removed soil shall be conducted.	1	2	3	4	5 6
(4)	Recycling of removed soil shall be conducted in a single location.	1	2	3	4	5 6
(5)	Recycling of removed soil shall be conducted in multiple locations.	1	2	3	4	5 6
(6)	Recycling of removed soil shall be conducted outside of Fukushima Prefecture.	1	2	3	4	5 6
(7)	Recycling of removed soil shall be conducted, including Fukushima Prefecture.	1	2	3	4	5 6
(8)	Final disposal should be done in a single location.	1	2	3	4	5 6
(9)	Final disposal should be done in multiple locations.	1	2	3	4	5 6

2. How important do you consider the following perspectives to be in the removed soil issue?

Please select the number that most closely matches your current opinion.

	Question	Not important. ←							→ Important.
(1)	Reduce the risk and cost of final disposal and recycling.	1	2	3	4	5	6	7	
(2)	Sharing the burden of final disposal and recycling.	1	2	3	4	5	6	7	
(3)	Consideration should be given to the burden on the people of Okuma and Futaba Towns where the interim storage facilities are located.	1	2	3	4	5	6	7	
(4)	Consideration should be given to the burden on local people who will take on the newly removed soil.	1	2	3	4	5	6	7	

3. We would like to ask you about your impressions of the information given in the informational materials.

Please select the number that best describes your impression.

	Question	I don't think so. ←							I think so. →
(1)	The information given in the informational material is neutral.	1	2	3	4	5	6	7	
(2)	The information given in the informational material is balanced.	1	2	3	4	5	6	7	
(3)	The information given in the informational material is biased.	1	2	3	4	5	6	7	
(4)	The information given in the informational material is arbitrarily leading the discussion.	1	2	3	4	5	6	7	
(5)	The information given in the informational material is complicit with a particular position.	1	2	3	4	5	6	7	
	Question	Be too little ←					just good		Be too much →
(6)	The amount of information given in the informational material is little/too much.	1	2	3	4	5	6	7	
	Question	Too easy ←					just good		Too difficult →
(7)	The difficulty level of the information given in the informational material is easy/difficult.	1	2	3	4	5	6	7	

4. We would like to ask you about your interest in and knowledge of the removed soil issue prior to receiving the information.

Please select the number that best fits your question.

(1)	To what extent were you interested in the disposal of removed soil that is in the interim storage in Fukushima Prefecture?
1. I had no interest at all. 2. I did not have much interest. 3. I can't say either way. 4. I was somewhat interested. 5. I was very interested.	
(2)	Did you know the following information? Please check all that you knew.
☐ The final disposal of removed soil outside of Fukushima Prefecture must be specified in the law. ☐ That the removed soil is in interim storage in Futaba and Okuma towns in Fukushima Prefecture. ☐ The large amount of removed soil has a low concentration of 8,000 Bq/kg or less. ☐ I didn't know any of them.	

6. Finally, I would like to ask again about the final disposal of removed soil outside of the prefecture.

Do you agree or disagree with the final disposal of removed soil outside of the prefecture? Please select the answer that is closest to your current opinion.

Conducting the Final disposal of removed soil outside of the prefecture -> Pros / Cons

Questionnaire 2

● Experimental ID: _____

1. First, how much did you strive to do the following in your discussion?

Please select the number that comes closest.

	Question	I didn't try. ←						→ I tried.
(1)	To argue one's point of view and to refute or persuade others of a different opinion so that one's position becomes the group's decision.	1	2	3	4	5	6	
(2)	Examine and discuss both the good and bad points of out-of-prefecture final disposal, taking into account both pro and con positions.	1	2	3	4	5	6	

2. Do you think the following items are good or bad?

Please select the number closest to your current opinion.

	Question	I think it's bad. ←						I think it's good. →
(1)	Final disposal should be done outside of Fukushima Prefecture.	1	2	3	4	5	6	
(2)	Final disposal should be done within Fukushima Prefecture.	1	2	3	4	5	6	
(3)	Recycling of removed soil shall be conducted.	1	2	3	4	5	6	
(4)	Recycling of removed soil shall be conducted in a single location.	1	2	3	4	5	6	
(5)	Recycling of removed soil shall be conducted in multiple locations.	1	2	3	4	5	6	
(6)	Recycling of removed soil shall be conducted outside of Fukushima Prefecture.	1	2	3	4	5	6	
(7)	Recycling of removed soil shall be conducted, including Fukushima Prefecture.	1	2	3	4	5	6	
(8)	Final disposal should be done in a single location.	1	2	3	4	5	6	
(9)	Final disposal should be done in multiple locations.	1	2	3	4	5	6	

3. How important do you consider the following perspectives to be in the removed soil issue?

Please select the number that most closely matches your current opinion.

	Question	Not important. ←						Important. →
(1)	Reduce the risk and cost of final disposal and recycling.	1	2	3	4	5	6	7
(2)	Sharing the burden of final disposal and recycling.	1	2	3	4	5	6	7
(3)	Consideration should be given to the burden on the people of Okuma and Futaba Towns where the interim storage facilities are located.	1	2	3	4	5	6	7
(4)	Consideration should be given to the burden on local people who will take on the newly removed soil.	1	2	3	4	5	6	7

4. How did you speak up during the discussion?

Please select the number that comes closest.

	Question	I don't think so. ←								I think so. →
(1)	I spoke on reducing the risks and costs associated with soil removal.	1	2	3	4	5	6	7		
(2)	I spoke up regarding sharing the burden of soil removal.	1	2	3	4	5	6	7		
(3)	I spoke up regarding the burden on the people of Okuma and Futaba, where interim storage facilities are located.	1	2	3	4	5	6	7		
(4)	I made well-balanced statements regarding "reducing risks and costs," "sharing the burden," and "considering the burden on the people of Okuma and Futaba Towns.	1	2	3	4	5	6	7		
(5)	I gave reasons for my arguments from a logical and objective point of view.	1	2	3	4	5	6	7		
(6)	I gave my reasons for my claim from a psychological and emotional point of view.	1	2	3	4	5	6	7		

5. We would like to ask you about the nature of the discussions in which you participated.

Please select the number that comes closest.

	Question	I don't think so. ←							I think so. →
(1)	Discussions included reducing risks and costs associated with removed soil.	1	2	3	4	5	6	7	
(2)	During the discussion, the sharing of burdens related to removed soil was discussed.	1	2	3	4	5	6	7	
(3)	During the discussion, consideration for the burden on the people of Okuma and Futaba Towns, where interim storage facilities are located, was discussed.	1	2	3	4	5	6	7	
(4)	In the discussions, "reducing risks and costs," "sharing the burden," and "consideration for the burden on the people of Okuma and Futaba Towns" were all discussed.	1	2	3	4	5	6	7	
(5)	In the discussion, the reasons for each claim were stated from a logical and objective point of view.	1	2	3	4	5	6	7	
(6)	In the discussion, the reasons for each claim were given from a psychological and emotional point of view.	1	2	3	4	5	6	7	

6. We ask you about what you thought about during your discussion.

Please select the number that comes closest.

	Question	I don't think so. ←								I think so. →
(1)	I thought the issue of removed soil was a problem that was relevant to me.	1	2	3	4	5	6	7		
(2)	I thought I was one of the parties in the removal soil issue.	1	2	3	4	5	6	7		
(3)	During the discussion, I imagined myself in the position of the people of Okuma and Futaba Towns and considered the issue of soil removal.	1	2	3	4	5	6	7		
(4)	During the discussion, I considered the issue of removed soil from the perspective of the people of Okuma and Futaba towns.	1	2	3	4	5	6	7		
(5)	During the discussion, I imagined myself in the position of those who would assume the burden of the newly removed soil and considered the issue of removed soil.	1	2	3	4	5	6	7		
(6)	During our discussion, I considered the issue of removed soil from the perspective of those who would be assuming the burden of the newly removed soil.	1	2	3	4	5	6	7		

7. We would like to ask you about the discussions you have participated in.

Please select the number that comes closest.

	Question	I don't think so. ←								I think so. →
(1)	I had ample opportunity to speak up.	1	2	3	4	5	6	7		
(2)	My opinion was fully heard.	1	2	3	4	5	6	7		
(3)	Everyone had an equal opportunity to speak.	1	2	3	4	5	6	7		
(4)	They took care of each other so that everyone would speak up.	1	2	3	4	5	6	7		
(5)	Those who were more assertive dominated the discussion.	1	2	3	4	5	6	7		
(6)	The discussion was dragged down by the loudest voices.	1	2	3	4	5	6	7		
(7)	In the discussions, minority opinions were respected.	1	2	3	4	5	6	7		
(8)	He listened to the opinions of the minority in the discussion.	1	2	3	4	5	6	7		
(9)	During the discussion, opinions were expressed from diverse perspectives.	1	2	3	4	5	6	7		
(10)	Various perspectives were expressed during the discussion.	1	2	3	4	5	6	7		
(11)	The opinions of all participants were reflected in the conclusions reached.	1	2	3	4	5	6	7		
(12)	The opinions of all participants were incorporated in reaching the conclusion.	1	2	3	4	5	6	7		
(13)	Overall, the discussion was a fair process.	1	2	3	4	5	6	7		
(14)	Overall, the way the discussion was conducted was fair.	1	2	3	4	5	6	7		

8. I would like to ask you about the conclusions of the discussion reached by your group.
Please select the number that comes closest.

	Question	I don't think so. ←								I think so. →
(1)	The conclusion is that it reduces risks and costs to society as a whole.	1	2	3	4	5	6	7		
(2)	The conclusion is that it reduces the risk and cost to society as a whole.	1	2	3	4	5	6	7		
(3)	The conclusion is that the burden is shared.	1	2	3	4	5	6	7		
(4)	The conclusion is that it reduces burden bias.	1	2	3	4	5	6	7		
(5)	The conclusion is that it imposes a burden on certain regions.	1	2	3	4	5	6	7		
(6)	The conclusion is that there is a significant burden bias toward certain regions.	1	2	3	4	5	6	7		
(7)	The conclusion is that consideration was given to the burden on the people of Okuma and Futaba Towns.	1	2	3	4	5	6	7		
(8)	The conclusion is to reduce the burden on the people of Okuma and Futaba Towns.	1	2	3	4	5	6	7		
(9)	The conclusion is that consideration has been given to those who will be taking on the newly removed soil.	1	2	3	4	5	6	7		
(10)	The conclusion reduces the burden on those who take on newly removed soil.	1	2	3	4	5	6	7		
(11)	The conclusion is one that fully incorporates "risk and cost reduction," "burden sharing," and "consideration for those who bear/have borne the burden.	1	2	3	4	5	6	7		
(12)	The conclusion is a balanced incorporation of "risk and cost reduction," "burden sharing," and "consideration for those who bear/have borne the burden.	1	2	3	4	5	6	7		
(13)	The conclusion is a good one overall.	1	2	3	4	5	6	7		
(14)	The conclusion can be evaluated as good overall.	1	2	3	4	5	6	7		

9. The discussions you have participated in, the process of making decisions, and the conclusions of the discussions.

We ask you about the overall process, including your participation in the discussions, the process of making decisions, and the conclusions of the discussions.

Please select the number that applies most to you.

	Question	I don't think so. ←						I think so. →
(1)	I can accept the group's decision based on the overall discussion, process and conclusions.	1	2	3	4	5	6	7
(2)	I can look at the overall discussion, process and conclusions and agree with the group's decision.	1	2	3	4	5	6	7
(3)	The discussions, process and conclusions will be acceptable to the people of Okuma and Futaba Towns.	1	2	3	4	5	6	7
(4)	The discussions, process and conclusions will be acceptable to the people of Okuma and Futaba Towns.	1	2	3	4	5	6	7
(5)	The discussions, process and conclusions will be acceptable to those who will assume the burden of the newly removed soil.	1	2	3	4	5	6	7
(6)	The discussions, process and conclusions will be acceptable to those who will assume the burden of the newly removed soil.	1	2	3	4	5	6	7
(7)	The discussion, process and conclusions will be acceptable to many people throughout society.	1	2	3	4	5	6	7
(8)	The discussion, process and conclusions will be acceptable to many people throughout society.	1	2	3	4	5	6	7

10. If you have any comments or opinions about today's experiment, please write them in the space below.