

Online Resource 4

- Article Title: Effect of the discussion frame on finding a compromise: A group decision experiment about removed soil management in Japan
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- Description: We present the decision statements for all groups from the next page.

Controversial 1)

As a group decision, we determine to be opposed judging by majority voting. Even supporters were concerned about the cost of the final disposal and doubted that psychological burdens were mitigated by conducting the final disposal at multiple sites except the Fukushima prefecture. Although managing the disposal at only one site does not lead to a reduction in the psychological burden, there is also the possibility of increasing the burden by spreading at multiple sites. If so, supporters began to hold the idea that it is better to manage concentrations, save costs, and provide financial benefits to the people of the Fukushima prefecture. Therefore, we decided that the final disposal outside the Fukushima prefecture was disapproved of as a group.

Controversial 2)

Within our team, the decision remains pending because we conclude that the final disposal would be better conducted both within and outside the Fukushima prefecture. Until this decision was made, opinions varied. Participants in the supportive position on the final disposal outside the Fukushima prefecture said that it is appropriate to bury in a prefecture that has a smaller population than Fukushima, all Japanese should be responsible for the management of radioactive substances, and conducting the final disposal within the Fukushima prefecture could impose psychological burdens on Fukushima residents. Opposition to the final disposal outside the Fukushima prefecture emphasized concerns about discrimination, criticism, and backlash both within and outside the prefecture. Regarding the reuse of the soil, there were opinions that it would be better to participate in public works and agriculture and use it as a breakwater for tsunamis. Regarding the issue of the number of disposal sites, it was a heavy psychological burden to locate only one site; thus, it would be better to distribute to multiple sites. Moreover, regarding the cost of final disposal sites, the opinion emerged that, as the people in Japan have benefited from nuclear power plants, the burden should be shared with them. We agree that the optimal number of final disposal sites is approximately 10–15 and is limited to areas with minimal disaster risk.

Controversial 3)

Although I was against it initially, the decision within our group was ultimately in favor because the majority was in a supportive position. Initially, opinions from the supportive position were that the top priority was to consider the sentiments of Fukushima residents and that the burden borne by them was too high if they were allowed to implement the final disposal as well. Conversely, the opposition emphasized issues such as ease of

management, concern about reputational damage spreading across various regions, time delays caused by uncertainty, and whether any municipality accepted the final disposal. In addition, we discussed the number of final disposal sites. Through discussion, the opinion emerged that it would be better to concentrate on only one site if possible, but another opinion was that it was appropriate to have multiple sites when multiple municipalities permitted the final disposal. However, given the sentiments of the people and the possibility that there were organizations that accepted presenting economic support, our group agreed with the supportive position on the final disposal outside the Fukushima prefecture.

Controversial 4)

As a group, the conclusions were in opposition. There were opinions in favor of the final disposal outside the Fukushima prefecture. These opinions included reducing the burden and encouraging people in other areas to further understand the disaster. However, regarding reducing the burden, opinions were also made that this would increase the burden on other areas and that it would be difficult in reality. In the Fukushima prefecture, interim storage facilities are currently available, so there is a condition in place to manage waste (that is, decontaminated soil) well. We thought that there was no need to take the risk of transporting the waste to other places; thus, the conclusion was against the final disposal outside the Fukushima prefecture.

Controversial 5)

Regarding the reuse of soil, everyone was in favor of it under the condition that the government could manage it, because the reuse of soil is relatively safe and cost-effective. The decision regarding disposal sites involved supporting a single location. Certainly, we acknowledged that the potential of distribution led to mitigating the burdens because other people would have as much difficulty. However, eventually, concentration in only one site was better than in multiple sites because it would lower costs, management would be easier, and the number of people who bore the burden would be less. Additionally, although we did not have much discussion, there was consensus that the final disposal of soil outside the Fukushima prefecture could be approved.

Controversial 6)

In this discussion, the conclusion was, in principle, in favor of the final disposal site outside Fukushima. The initial opposing opinions included concerns about the deterioration

of the relationships between Fukushima residents and those who lived in other prefectures because of the construction of a final disposal site.

In addition, there was a discussion about where the burden of the reuse of low-concentration soil should be placed, and we generally agreed that the reuse should be borne by those outside the Fukushima prefecture. It was difficult to reach a consensus regarding the number of final disposal sites. We could not quantitatively evaluate whether the dispersing risk led to a higher risk. Therefore, the final number of disposal sites could not be determined.

Finally, we shifted our topic to selecting the final disposal site location. Concerning site selection, there were two proposals for using a lottery system and the government's responsibility to select an appropriate location. In the process of the discussion, concerns were raised that even a lottery system could not entirely avoid the deterioration of the relationship with the people of the Fukushima prefecture and caused a psychological burden on them. Ultimately, regarding the psychological burdens of Fukushima residents, there was an opinion that there was a trade-off between the burdens caused by constructing the final disposal within Fukushima and shifting the burdens to others living outside Fukushima. Given this opinion, a consensus was reached in favor of the final disposal outside the Fukushima prefecture from the perspective of equality between Fukushima and other prefectures.

Controversial 7)

The decision regarding the reuse of low-concentration soil was settled, with unanimous agreement reached on the permission to reuse outside the Fukushima prefecture. However, the final disposal of soil outside the Fukushima prefecture remained undecided. Supporters of the final disposal outside Fukushima have primarily emphasized emotional considerations, suggesting that if emotional concerns can be addressed, it would be preferable to locate the final disposal site within Fukushima. Emotional factors were the most significant obstacles.

Controversial 8)

Ultimately, the group decision involved opposing disposal outside the prefecture. Deliberations began with the reconciliation of individual opinions, followed by discussions on locations for reuse and final disposal sites. Through this process, it became evident that the majority shared similar views, ultimately culminating in opposition to final disposal outside the Fukushima prefecture.

Initially, considering the merits and demerits regarding the reuse of the soil, we concluded that given the significant cost considerations, the reused materials should be reused within the Fukushima prefecture. Subsequently, when deliberating on the final disposal site, the consensus leaned towards consolidation into a single location. However, concerns arose that if the reuse within the Fukushima prefecture proved insufficient; this could exacerbate the volume of waste at the proposed final disposal site, potentially rendering consolidation challenging. Consequently, there was an opinion that the reuse of soil within the Fukushima prefecture was inadequate.

Throughout the discussions, the opinion consistently favored a single final disposal site, preferably within the Fukushima prefecture. Ultimately, we reached a consensus that the final disposal outside Fukushima was disapproved.

Controversial 9)

The consensus reached during our discussion favored the soil reuse. Because there were few negative opinions regarding reuse, it was acknowledged that the reuse would ultimately reduce the amount of soil requiring final disposal. No specific decisions were made regarding the number of sites to be reused. However, it was proposed that areas in Eastern Japan, including the Fukushima prefecture, could actively accept the reuse of soil because the soil was not significantly contaminated, and those areas have benefited from nuclear power plants. As for the number of final disposal sites, it was agreed to have one site located outside the Fukushima prefecture, with Hokkaido considered a potential location. Initially, suggestions were made to disperse the final disposal sites nationwide, given the significance of the risk. However, there were also concerns regarding the challenges of managing multiple sites and the potential for inadequate management leading to accidents, which facilitated a shift towards concentration. Considering the potential impact on the habitation around the final disposal sites, consolidating them into one location was deemed more favorable in terms of minimizing the total affected area. Hokkaido was chosen as the final disposal site because of its vast land area and lower risk of natural disasters compared to Fukushima. Based on these considerations, a consensus was reached to proceed with reuse and establish a single final disposal site in Hokkaido.

Controversial 10)

The group's conclusion was undecided regarding the approval or disapproval of the final disposal of the decontaminated soil. The lack of specific information concerning the safety of reuse and the laws governing it prevented discussion of these aspects. Concerning whether to support or oppose the final disposal of the soil, considerations for the costs,

manpower, and transportation expenses for soil led to the conclusion that final disposal within the Fukushima prefecture may be preferable to that outside the prefecture. However, when prioritizing the physical and psychological burdens on Fukushima residents, we thought that the final disposal outside Fukushima was preferred to that within the Fukushima prefecture.

Controversial 11)

The collective conclusion was in favor of final disposal outside the Fukushima prefecture. This decision was based on several factors. Primarily, there was empathy towards the plight of Fukushima residents, acknowledging the unfairness of concentrating radioactive materials solely within Fukushima and the heightened risks associated with it, which might lead to new challenges. Concerns were also raised about the significant risk of reputational damage directed at Fukushima if the materials were retained locally, suggesting that nationwide transportation should bear the reputational damage equally across the country. Acknowledging the associated costs, transportation in the country seemed to reduce risks. In contrast, it was said that management outside the Fukushima prefecture was more difficult than that within the prefecture alone. However, considering the assurance of soil, there was agreement on the transformation outside the Fukushima prefecture. Additionally, suggestions to store materials in Fukushima temporarily for safety checks before disposal elsewhere were deliberated, but concerns about a prolonged timeline for final disposal and the feasibility of such an approach led to a consensus favoring nationwide transportation.

Controversial 12)

The conclusion remained undecided because of a lack of consensus. Among the supporting opinions, there was a suggestion to disperse and dispose the decontaminated soil outside the Fukushima prefecture to mitigate the burden concentrated in the prefecture. However, opposing views expressed concerns that dispersion could lead to negative nationwide public perceptions, preventing consensus on this aspect. Additionally, there were suggestions to dispose of decontaminated soil within the Fukushima prefecture to reduce costs. It was proposed that cost savings could be utilized for reconstruction efforts in the Fukushima prefecture, and reconstruction was potentially promoted by funds collected nationwide.

Controversial 13)

The group decision was partly approved, suggesting the allocation of multiple final disposal sites, with the Fukushima prefecture serving as one of them. First, there was

considerable support for final disposal outside Fukushima because of the adverse implications of solely burdening the prefecture with all disposal responsibilities. However, during the discussion, other factors such as transportation costs, risks associated with the chosen disposal sites, and the potential for public perception issues were carefully considered. Consequently, the idea of constructing numerous final disposal sites outside the Fukushima prefecture was deemed unreasonable, leading to a consensus in favor of distributing responsibility across multiple sites, with Fukushima serving as one among them, thereby mitigating the burden on Fukushima residents.

Controversial 14)

Initially, supporters of final disposal outside the Fukushima prefecture comprised the majority, with three in favor and one against. Proponents cited the confirmation of safety, ease of management, and risk reduction through dispersion. Conversely, opponents expressed concerns that dispersion could lead to unforeseen complications. In addition, they were concerned about safety uncertainties. As the deliberations progressed, questions emerged regarding unclear laws. We believed that it was potentially dangerous to inform citizens before determining where to conduct the final disposal. In this sense, the judgment of whether the final disposal outside the Fukushima prefecture was approved relied on the related law.

Controversial 15)

Ultimately, the consensus was the approval of the final disposal outside the Fukushima prefecture. Proponents argued that in Fukushima, where over 90% of the population is still evacuated, and persuading residents to accept the project is challenging, the dispersion of soil could prevent the continuation of their evacuation. Conversely, opponents suggested that consolidating one location could reduce the risks and costs associated with management and transportation. They also expressed concerns about the negative nationwide perceptions that might arise from the project. When reaching this conclusion, it was crucial to consider the necessity of persuasion to advance the project and the importance of risk assessment. The concentration at the final disposal site had the advantage of potentially mitigating discrimination and minimizing the impact on the surrounding communities. However, persuading residents of the Fukushima prefecture remained a significant challenge, particularly considering the promise made during the establishment of the interim storage facility. From the perspectives of risk and persuasion, proponents were deemed to have a more feasible position, leading them to adopt their stance on group decisions.

Controversial 16)

At the outset, there was unanimous support for final disposal outside the Fukushima prefecture. Hence, this opinion reached a consensus among the groups. Supporters cited the existing burdens on the Fukushima prefecture, suggesting that it would be equitable to distribute these burdens among other regions. Consistency with the law bolstered this position. Conversely, we assumed opposing stances, such as objections from residents of other prefectures, and questioned the clarity of legal foundations. Other concerns were also raised regarding the opacity of the risks associated with hazardous material transport and the benefits of minimizing the number of stakeholders. However, rebuttals to these arguments highlighted the possibility of risk and burden reduction, advocating against concentrating responsibilities solely on the Fukushima prefecture and emphasizing the importance of sharing burdens. During the discussion, it was argued that the beneficial areas of Fukushima's nuclear power plant were large and the importance of reciprocal aid was given to the frequency of earthquakes occurring in Japan. Ultimately, it was concluded that explanations regarding the safety of reuse and demonstrations of efficacy confirmed in the Fukushima prefecture would mitigate concerns. Regarding the final disposal site, we proposed multiple sites outside the Fukushima prefecture, at the same time recommending careful and a few selections based on proper conditions, the inclusion of the explanation as the same as the reuse, and conducting support such as subsidies.

Inclusive 1)

Ultimately, the consensus leaned towards supporting the establishment of the final disposal site outside the Fukushima prefecture. During the initial discussions, a unanimous agreement favored the establishment of a final disposal site outside Fukushima, leading to the group decision to adopt this approach. Regarding the reuse of soil, the discussion proceeded towards reusing the soil to reduce its volume for final disposal. Therefore, it was proposed to distribute the soil for reuse from the desired regions, with any surplus handled throughout the country. Concerning the soil used for final disposal, opinions were divided into concentrated disposal at one site and dispersed disposal across several sites. Some who supported concentrated management claimed the ease of administration and cost effectiveness. On the other hand, people advocating for the dispersion of the burden argued that it would mitigate the risks and reduce the reputational damage associated with concentrated disposal. Finally, a decision was made in favor of dispersed final disposal across a few sites to mitigate reputational damage. In addition, a few municipalities accepted both the reuse and final disposal of soil. To address this problem, proactive information dissemination through social media was deemed essential to raise awareness of the issue. Moreover, economic benefits, which differed from traditional subsidies, were suggested to incentivize municipalities to accept the reuse and final disposal of soil. It seemed important to financially support municipalities that bear both the reuse and final disposal. Regarding municipalities accepting the final disposal, a unique concept was proposed to leverage the benefits of accepting such soil. For instance, using government support, municipalities could develop a concept focused on creating elderly- or child-friendly communities, thereby alleviating reputational damage and enhancing the benefits of accepting such soil.

Inclusive 2)

The group consensus reached was to distribute the responsibility for the final disposal of the soil among the broader region of Tohoku, including the Fukushima prefecture. Initially, half of the participants (two out of four) opposed the final disposal outside Fukushima prefecture, prompting discussions on the reasons behind disposing of the soil for final disposal outside the prefecture. Some participants speculated that legal frameworks were enacted to establish an interim storage facility in the Fukushima prefecture. However, the consensus leaned towards final disposal outside Fukushima to alleviate the burden on Fukushima residents. Regarding potential disposal sites, there were concerns about environmental contamination if the soil was disposed of in the ocean and transportation costs if disposed of on uninhabited islands. Moreover, if the government asked some

municipalities to accept the final disposal site instead of providing subsidies, the burden would be blamed on each other. Additionally, given the subsidies and transportation costs, it was concluded that sharing the responsibility for the final disposal among the entirety of Tohoku would be the most cost-effective and equitable approach, considering the shared responsibility of utilizing nuclear power plants. As for the reuse of soil, we concluded that it would be conducted within Fukushima to brand agricultural products. Another hypothesis was that lowering land prices would be beneficial. When people who evacuated Fukushima returned to the prefecture, their initial income might not have been stable. Therefore, if land prices were lower, they may facilitate returns.

Inclusive 3)

The conclusion was reached by conducting final disposal activities outside Fukushima. Final disposal within the Fukushima prefecture was deemed challenging both quantitatively and psychologically for those affected by the disaster. Additionally, there were opinions suggesting that storage in locations less prone to disasters or safer areas would be preferable. Regarding the reuse of soil, the consensus leaned towards utilizing reuse opportunities as much as possible. Suggestions included gradually incorporating reused materials into nationwide public projects or utilizing them within the framework of reconstruction efforts. While reusing the soil closer to the disaster area might seem rational in terms of both proximity and efficiency, concerns about the emotional burden on affected individuals led to the conclusion that implementing reuse solely in disaster-stricken regions may not be the optimal choice.

Inclusive 4)

The group's conclusion suggests that soil requiring final disposal, currently located within the Fukushima prefecture, should be transported to uninhabited areas using funds collected from other prefectures. Any remaining soil that cannot be transported should be managed within Fukushima, receiving financial support from other prefectures. This approach stems from the need for final disposal outside the Fukushima prefecture because of its significant financial burden. Thus, the burden must be dispersed to other areas. However, transporting soil to other prefectures may elicit objections from the residents of these areas. Therefore, financial assistance from the surrounding prefectures in the form of transportation and management costs should be sought. If possible, soil could be transported to uninhabited areas to mitigate concerns regarding reputational damage. If any soil remains, considering issues such as cost, conducting final disposal within the Fukushima prefecture would be advisable.

Inclusive 5)

Initially, everyone agreed to the final disposal of the soil for distributing the burden to various prefectures outside Fukushima. However, the main challenge was whether these locations understood the acceptance of soil. Particularly concerning were areas such as Tokyo, where there may be a lack of awareness regarding the issue. We argued that the transport area in eastern Japan is closer to the Fukushima prefecture. Regarding Tokyo, it was deemed that financial contributions to support Fukushima would be more feasible than directly accepting the soil.

Inclusive 6)

Initially, our discussion commenced with three individuals in favor of and one in opposition to the final disposal outside the Fukushima prefecture. The prominent aspect favoring final disposal was perceived to be the distribution of burden. Opposing viewpoints included concerns about the burden bearing on a larger population, risks becoming dispersed, and uncertainties regarding finding acceptance sites. However, these opinions were not approved because of the potential for heightened resistance when constructing facilities with associated risks, and all people should bear this burden. Ultimately, the conclusion was reached to pursue final disposal outside the Fukushima prefecture, while the latter would accept the complete reuse of the soil. In addition, the final disposal soil would be distributed among prefectures, except for the Fukushima prefecture, based on population proportions. It was agreed that the construction costs would be borne by each prefecture, with transportation costs covered by the national government.

Inclusive 7)

The conclusion of the discussion led to a decision to approve the final disposal outside the Fukushima prefecture. Throughout the discussion, several reasons were cited. First, the stipulation of the law was highlighted. Moreover, the law suggested that conducting a final disposal outside Fukushima would alleviate their psychological burden. In the discussion process, it emerged that it would be unfair for the Fukushima prefecture to undertake disposal, while other prefectures benefited from this. It was also argued that selecting the final disposal facility in areas with fewer inhabitants than those where the interim storage facilities are located could minimize negative impacts on individuals, thus approving final disposal outside Fukushima. Among the opinions in favor of disposal outside the prefecture, the fact that interim storage facilities were utilized on private land was also mentioned. Conversely, opposition to final disposal outside Fukushima centered on cost

concerns, psychological burdens on residents in other prefectures, and the risk of reputational damage to those prefectures hosting the final disposal sites. However, the primary reason behind the decision to pursue final disposal outside the Fukushima prefecture stemmed from the sentimental belief that it would be unfair for only the prefecture affected by the nuclear accident to bear the burden of the decontaminated soil. We argued that the adverse effects would be mitigated by dispersion among prefectures, including the Fukushima prefecture.

Inclusive 8)

The collective conclusion reached was the “Other” option. The procedure for final disposal started by reducing the required volume for landfill through the recycling of soil and then obtaining consent from the people of Fukushima regarding final disposal outside the Fukushima prefecture. It was decided to ensure consent from the receiving parties and determine the benefits of subsidies for them before deciding on the selection of final disposal sites. Initially, we reached a consensus that it would be challenging to proceed without benefits for the receiving parties and that acceptance could be promoted by reducing the amount of landfills. One point of contention was whether landfilling outside Fukushima was feasible. There was also a debate regarding whether the people of Fukushima consented to this policy. However, it was suggested that, if there were benefits, some municipalities might be willing to accept the soil, and it was deemed important to respect the desires of Fukushima residents who wished to return to their land. Consequently, if Fukushima residents consented to disposal outside the prefecture and there were places within the prefecture willing to accept it, it was deemed acceptable to proceed with the disposal. While we did not discuss transportation costs and logistics, and did not yet resolve them, there was an agreement to offer subsidies to facilitate the selection of receiving sites.

Inclusive 9)

The conclusion was to conduct soil recycling and final disposal both within and outside the prefecture. The reasons behind this decision stemmed from concerns that disposal solely outside the prefecture, even in stable geological locations, might provoke strong opposition from local residents. Therefore, it was deemed necessary to implement final disposal within the Fukushima prefecture as much as in other regions. Initially, the two agreed on final disposal outside Fukushima prefecture but unanimously supported the recycling of soil. Subsequently, when deliberating on the number of final disposal sites, it was determined that having multiple sites rather than a single site would be preferable from risk

and psychological perspectives. In the beginning, I was against final disposal outside Fukushima because I assumed that there would be only one disposal site. However, given that there were multiple sites for final disposal, these sites would be located both outside and within the Fukushima prefecture. Then, the initial objection to the final disposal outside Fukushima would be reversed; ultimately, it would allow unanimous support for disposal outside the prefecture.

Inclusive 10)

Our conclusion was in favor of final disposal outside the Fukushima prefecture. Initially, there were proponents and opponents, with the main reasons for supporting final disposal outside Fukushima being to avoid bearing the burden solely on Fukushima residents, distribute the burden across Japan, and mitigate the burdens that Fukushima residents bear, thereby ensuring fairness by dispersing disposal sites nationwide. The opposing viewpoint argued that since the Fukushima prefecture had received subsidies to improve municipalities when nuclear power plant facilities were established, the prefecture should be responsible for their installation. Additionally, the Tokyo Electric Power Company (TEPCO), which has installed nuclear power plants, should bear the responsibility. Therefore, there was an opinion that the disposal site should be located within Fukushima. Regarding the question of responsibility, given that the national government promoted nuclear power plants nationwide and officials elected by the Japanese people were responsible for their decision to install nuclear power plants, the responsibility should be borne not only by Fukushima residents or the municipalities where they were installed but also by all Japanese citizens. Therefore, it was decided that final disposal should not be limited to Fukushima but should be dispersed across Japan, leading to the decision to support final disposal outside the prefecture.

Inclusive 11)

The collective conclusion reached was to recycle as much waste as possible both within and outside the prefecture, minimize the amount required for final disposal, and distribute the final disposal to regions outside the prefecture to the extent that management enables. At the beginning of the discussion, some participants suggested that completing all processing within the prefecture would be preferable. However, through the examination of information materials and discussions, concerns emerged regarding the feasibility of relying solely on final disposal within Fukushima and its impact on reconstruction efforts. We then focused on the availability of unused land and depopulated areas in regions outside the Fukushima prefecture and argued that requesting final disposal with financial

assistance in these areas might be a more realistic solution. During the discussion, there were some concerns and opinions about how many municipalities are willing to accept final disposal, the rationale behind the legislation mandating final disposal outside Fukushima, how feasibly final disposal is conducted in areas with interim storage facilities, the extent to which emotional impact influences affected residents, and the extent to which it should be considered in the decision-making process.

Inclusive 12)

Overall, there was unanimous agreement among the four participants in favor of final disposal outside the Fukushima prefecture from the outset. Additionally, all the participants agreed that it is essential to recycle the soil and that recycling should be fully pursued. Regarding the remaining aspects, although it was preferable to complete the final disposal within Japan, it was important to determine the site and the number of sites. Some opinions on this issue considered factors such as the proportion of land area among the 47 prefectures and the possibility of exporting waste overseas. In another opinion, even if some regions might be in potential opposition, using AI, which provides scientific evidence and promising national funding and compensation, is a feasible method for final disposal. Ultimately, the consensus was to support the final disposal outside the Fukushima prefecture, with the determination of locations and the number of sites entrusted to AI. While there was a suggestion to include the Fukushima prefecture in disposal sites, it was recognized that considering both within and outside the prefecture and entrusting the determination of locations and quantities to AI would be advisable.

Inclusive 13)

The collective conclusion reached was against final disposal outside the Fukushima prefecture. Initially, the discussion comprised three opposing views and one favoring view. The opposing stance primarily concerned potential defamation and the associated costs of dispersion. Conversely, proponents argued that dispersal prevents the concentration of (disposal and management) functions in a single location. A mutual understanding was found between opposing viewpoints. For example, a consensus emerged that the transportation of decontaminated soil from Fukushima to distant regions was logistically and financially inefficient. Regarding the recycling of soil, the aim was to utilize areas that were close to the Fukushima prefecture and where there was minimal interference with food or agriculture, such as roads. When it comes to culture, dispersing it too widely may lead to the loss of certain cultural types or an increase in their numbers. Concentrating on the final disposal site at a single location can mitigate this loss. Additionally, the

concentration of the site may reduce costs, and these resources can be redirected to preserve the cultural heritage of areas affected by the disposal site, which could be considered a benefit of centralizing disposal operations. These were discussed as the potential advantages of concentrating disposal activities in a single location.

Inclusive 14)

Initially, the majority favored final disposal outside the Fukushima prefecture. The reasons for this included the desire to distribute the risk to some extent and alleviate the burden on Fukushima residents. Concerns regarding the demerits of final disposal outside Fukushima initially centered on the cost and potential dispersion of risks, which might lead to damage across multiple locations. Ultimately, we agreed to the final disposal within the Fukushima prefecture because of the lack of safety assurance. In particular, the landfilled removed soil was probably uncovered by humans and earthquakes. Given that it is necessary to spend thousands of years making decontaminated soil unhazardous, it is difficult to tell whether the soil was buried underground during such a long period. We also discussed the perspective of reputational damage. Although reputational damage would be appended to the Fukushima prefecture if final disposal were to be conducted within the prefecture, there was a high possibility of increasing the damage when the soil that was not confidently safe would be transported to other places. Therefore, we concluded that it was preferable to conduct final disposal within the Fukushima prefecture. In sum, our conclusion was against final disposal outside the Fukushima prefecture, since doing so would likely scarify the area of disposal and increase reputational damage as a whole.

Inclusive 15)

Our conclusion was to dispose of waste on uninhabited islands and regions. Initially, all members provided their opinions regarding final disposal outside the Fukushima prefecture, both in favor and against. Throughout this process, most individuals highlighted the advantages of final disposal outside the prefecture, such as the dispersion of risks, while the disadvantages involved concerns about increasing burdens and complexities, raising the number of persons involved, and finding sites that they were willing to accept. As ideas for final disposal, some proposed burying uninhabited islands and transporting decontaminated soil outside the Fukushima prefecture after providing compensation to gain acceptance. Initially, final disposal within Fukushima was also considered because it could save costs and reduce burdens. We focused on these three ideas as options for resolution. Ultimately, the decision favored transporting waste to uninhabited islands

despite concerns about potential environmental criticism, as it was deemed the option most likely to minimize individual burdens on residents.

Inclusive 16)

Initially, there were divergent opinions regarding whether to conduct final disposal within or outside Fukushima, as well as whether to conduct concrete disposal at a single site or distribute it across multiple locations. Advocates of concentration argued for ease of management, whereas detractors raised concerns about the associated risks of concentrating a large volume of waste in one location. Conversely, dispersing waste across multiple sites was seen as spreading risks associated with hazardous materials nationwide, potentially causing negative impacts all over Japan. Finally, we decided to conduct the final disposal at a single site near the nuclear power plant to consolidate the sacrificed area rather than disperse the risks and get damaged at many sites. However, it was recognized that such an approach might unfairly bear the burden on Fukushima residents with all the associated risks. To address this, it was proposed that these relatively safe soils be reused and distributed across multiple locations nationwide, thereby sharing the psychological burden among all citizens, and placing them as a component of Fukushima's reconstruction efforts.