

**Topic-Setting Program to Advance Cutting-Edge
Humanities and Social Sciences Research**

(Responding to Real Society)

Progress Report
(Summary of Final Report)

**[Process design for public decision making in complex situations
involving conflicts between individual profit and public benefit]**

Core-Researcher: Susumu Ohnuma

Institution: Hokkaido University

Academic Unit: Graduate School of Humanities and Human Sciences

Position: Professor

Research Period: FY2015 – FY2018

1. Basic information of research project

Research Area	Interrelationship between institutions, culture, public spirit, and socioeconomic systems
Project Title	Process design for public decision making in complex situations involving conflicts between individual profit and public benefit
Institution	Hokkaido University
Core-Researcher (Name, Academic Unit & Position)	Susumu Ohnuma, Graduate School of Humanities and Human Sciences, Professor
Project Period	FY2015 - FY2018
Appropriations Plan (¥)	FY 1,920,000 JPY
	FY 4,300,000 JPY
	FY 3,250,000 JPY
	FY 1,800,000 JPY

2. Purpose of research

Based on the view that shared recognition of the people produces and reproduces society and culture, this study aims to bridge the findings in basic research in social sciences particularly including social psychology and practice through empirical research, and thus to provide the suggestion for policy-making in the local governments and municipalities. Shared belief varies with the local social group and constrains the individuals' behaviors in a particular situation. Therefore, problems relevant to the phenomena have been pointed out that: a) a system which should equally cover the entire society does not always work on some people in particular social groups, b) it becomes more complicated to build a consensus resolving the conflicts of the values among the groups that have formed different belief. Very few studies have dispensed the efficient prescription for policy-making in practice, although some studies have reviewed and summarized these problems (Ikeda, 2013). It is essential to find a road to resolving the issues that uncover the process which the goals are shared in the people and groups having conflicting values and beliefs, in addition to understanding how individuals recognize the goals of the issues. Accordingly, this study explores the following two research agenda with "sharing the common goal" as a key concept.

The first research agenda is to investigate what types of opportunity for dialogues and discourses contribute to sharing the common goal in the policy-making process from planning to implementation. Mere assessment of the effects of the policy alone cannot respond to the questions required in real society. Instead of measuring the effects, it helps efficient policy-making to capture the social dynamics of how individuals' recognition changes and how the beliefs are shared in the local societies. The second agenda is to investigate whether the shared belief can be changed and how the new common goal can be shared by interacting the local groups having different values and interests. Summarizing the findings delivered from these two research agendas, we discussed how to design the process of constructive dialogues and discourses in the practical policy-making.

3. Outline of research (Including study member)

The scope of this research was to contribute building a consensus in the public decision making of real-world addressing the significance of “sharing the common goal”, which focused on the process of forming and changing the shared norms in the local societies under the situation that stakeholders were contradictive and that there were tradeoffs between common benefit and personal profit. This project conducted empirical research using collaborative practice and case studies of the environmental policy-making process in Hokkaido, gaming simulated the model of a case and social survey. All of these relied on the theoretical basis of social dilemma researches, which is a situation pursuing the personal profit carries the disadvantage of the public benefit for the entire society.

Findings

- 1) We collaborated with stakeholders engaged in “Light for Next Generation Hakodate” and conducted a survey for tourists to investigate the willingness to pay and its psychological determinants. We also executed a social experiment asking the tourists donation and endowed an NPO for replacing to LED for lightning Goryokaku with the donated money. Many stakeholders worked together for the common goal of maintaining the night views, meaning that this research contributed immediately to practical activities.
- 2) An experiment using the public goods game revealed that communication among partial participants increased cooperation even not all participants could join the discussion. As it is unrealistic that all citizens communicate with each other, this study suggested the possibility and limitations that those who did not communicate could cooperate in reality.
- 3) It is demonstrated that sharing the common goal could overcome the controversy of the values and interests and could realize to foster cooperation using the gaming method. The results suggested the possibility to resolve the conflicts of diverse interests if stakeholders perceived the situation as a social dilemma even it seems to exist a tradeoff that someone gains the others loses.
- 4) A hypothetical scenario experiment treating a NIMBY issue revealed the significance of a multiple stepwise decision making processes.
- 5) Two waves social survey was conducted to evaluate the citizen participation program for planning a master plan for environment Sapporo. The results indicated that the stepwise participatory programs increased the public acceptance of the plan. Moreover, the back-cast scenario workshops were a useful tool for making people futures consideration.

In sum, we suggested the possibility of further research from the viewpoint that conflicts contradicting values and interests can be resolved by the process of redefining the situation as a social dilemma. We also signified that process design should not be proceeded mono-linearly with a single decision body but should contain the multiple-centered process. Finally, we demonstrated the significance of multiple stepwise decision making processes where citizens consent the frame of decision way in advance before beginning the process.

Project Members

Principal Investigator

Susumu Ohnuma (Professor, Graduate School of Humanities and Human Sciences, Hokkaido University)

Co-Investigator

Taisuke Miyauchi (Professor, Graduate School of Humanities and Human Sciences, Hokkaido University)

Yoichi Hizen (Professor, School of Economics & Management, Kochi University of Technology)

Midori Aoyagi (Principal Researcher, Center for Social and Environmental Systems Research, National Institute for Environmental Studies)

Practitioner

Manabu Kubota (Hokkaido Environment Foundation)

Yoshihisa Anpo (Hokkaido Environment Foundation)

4. Research results and outcomes produced

Research Results and outcomes

1) “Light for Next Generation Hakodate” project, and its field survey and social experiments

Hakodate is famous for the night view and many tourists visit there. “Light for Next Generation Hakodate” project is a collaborative work together with Council for Global Warming Countermeasure Hakodate and Hokkaido Environment Foundation involving citizen groups and the tourist company of night view business. They aim at adding value on the night view by replacing the old lights with environment-friendly ones. We conducted a questionnaire survey collaborating with the projects to measure how much tourists are willing to pay for the night view in February 2016 and obtained more than 1000 responses. The willingness to pay (WTP) was calculated in the standard way of environmental economics and showed 1580 yen (Fig. 1 upper). However, when calculated WTP in the other method using logarithm fitting and showed 806 yen (Fig. 1 bottom).

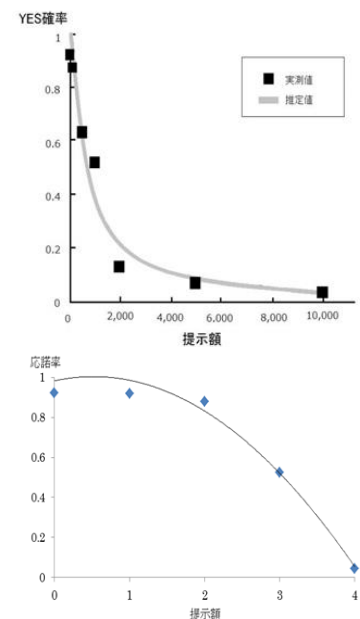


Fig. 1. estimated willingness to pay

Furthermore, psychological determinants of WTP was analyzed and indicated that attachment and personal norm were the significant factors for domestic tourists while expectation from others and interdependence were the significant factors for tourist from foreign tourists.

However, responses of the questionnaire measured the intention, which was not equal to the actual behavior. Therefore, we asked the tourists to donation for replacing the lights as a social experiment (Fig. 2). It was conducted three days in February 2017. Total of 137,880 yen was donated, which means



Fig. 2. A scene of the social experiment

90 yen/person that was because many families with small children donated small coins such as 1, 5, or 10 yen. Three persons per minute donated on average, indicating the effectiveness of the campaign.

In the end, we endowed an NPO engaged in an activity for replacing to LED of lightning Goryokaku with the donated money. Approximately 60 out of 260 LED lights were appropriated from the fund (Fig. 2). Many stakeholders worked together for the common goal of maintaining and adding values of the night views in the series of the project, including the surveys and the social experiment. This project had a great impact. In conclusion, our research contributed immediately to practical activities.



Fig. 3 The light up of Goryokaku utilized the donation by the social experiment

2) The effects of partial communication in the public goods game

Studies using public goods game have shown that communication increase cooperation. However, most of them assumed that all players join the communication. In reality, it is impossible for all people to join the dialogue in a large scale society; instead, a part of them join the opportunity. Nevertheless, very few studies examined what happens if partial players communicate. If only the participants joining the communication share the norms of cooperation and common benefit, those who do not join would not cooperate because they do not have the opportunity for acquiring such norms. However, if even those who do not join the communication can share the norms, they would cooperate. If it is true, we need to clarify why such norms can be shared. Accordingly, we conducted an experiment of public goods game setting three conditions: all players communication, partial players communication, and control conditions with no communication. The results revealed that communication among partial participants increased cooperation, even not all participants could join the discussion. However, participants possessing pro-self orientation did not cooperate if they did not join the communication in the partial condition, although pro-social oriented participants cooperated even they did not join the communication. On the other hand, even pro-self oriented participants increased cooperation rate after communicated in all players communication condition.

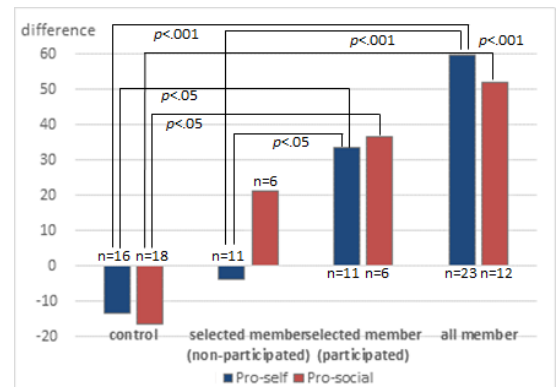


Fig. 4. the difference in cooperation rate by condition and SVO

Only a part of citizens joins the opportunity of the discussion in reality. Therefore, the studies how non-participants feel and act are required, but such studies have done insufficiently. This study suggested the possibility and limitations that those who did not communicate could cooperate in reality.

3) Consensus process in the controversial issue of conflicting interests using a gaming

We investigated under what conditions information and the common goal are shared, thus leading consensus when stakeholders are in conflict contradicting values and interest. We

developed a gaming-simulation, which installed conflicts of values and interests as a given social structure, and stakeholders in the game are required to negotiate with each other to maximize their gain. The structure contains zero-sum like payoffs in the sense that if someone gets the best, the others get worse; however, there is an equilibrium point where all players get the second best profit and the total benefit of all players maximized. If the players perceive the situation as a zero-sum game, it would be difficult to achieve consensus. On the other hand, if players perceived the situation as a social dilemma like, they might find the point that everyone gets better profit thus would achieve consensus.



Fig. 5. A scene of the game

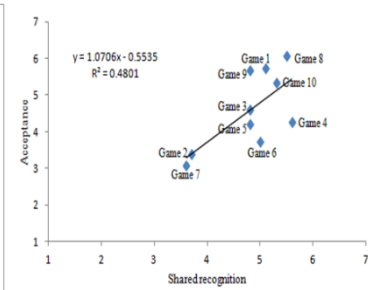
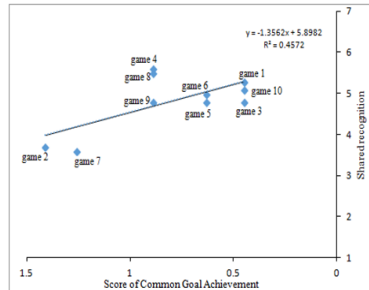


Fig. 6. The relation of shared common goal and the score (left fig) and satisfaction (right fig)

The results demonstrated that the more players sought and shared the common goal, the more got profit and were satisfied with the outcome. These results implied that seeking and sharing the common goal could overcome the controversy of the values and interests, realizing the importance of mutual cooperation. We suggested the possibility to resolve the conflicts of diverse interests if stakeholders perceived the situation as a social dilemma even it seems to exist a tradeoff that someone gains the others loses.

4) Effectiveness of a multiple stepwise decision making processes using hypothetical scenario experiment

The scope of this research included the development of an evaluation tool for not only the outcome but the decision process of a policy-making. To begin with this thought, we focused the prior consent of the decision method who and how should involve the process. We executed a hypothetical scenario experiment to demonstrate the significance of the stepwise decision making process involving diverse stakeholders. A NIMBY (Not In My Backyard) issue was taken up for the scenario where the majority of beneficiaries and the minority of victims are explicitly contradictory. However, in the scenario, no one knows who the victims will be. In other words, anyone can potentially be a victim. Participants were asked the acceptance of the decision if their residential area becomes the site for NIMBY facility under such uncertainty. We manipulated the agents involved in the decision process: authority, delegate representative of their interests, and citizens randomly chosen. The results revealed that acceptance level and procedural fairness were over middle point only when all three agents were involved in step by step, while the involvement of any single agent was not accepted and evaluated not a fair process. These results indicated the significance of stepwise decision making process, including public engagement with both stakeholders

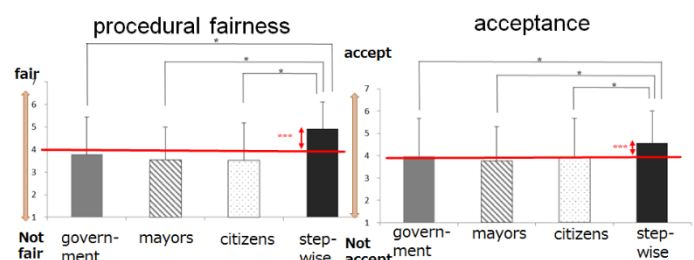


Fig. 7. Acceptance and procedural fairness in the hypothetical Scenario experiment

and citizen panels.

5) The evaluation of multiple stepwise decision making processes in the revision of the master plan for environment Sapporo

Sapporo city had to make the next environmental master plan as the first one was going to expire in March 2018. They conducted the multiple stepwise participatory programs for the revision and defined the goal to be achieved in 2030 and future image in 2050. The participatory program contained three steps: at the beginning, in the middle and at the end of the planning. Both stakeholders' meeting who are interested in environmental protection and citizen panel randomly chosen were included in the process (Fig. 8).

However, some citizens confused because it is difficult to image the future for more than ten years. Therefore, they organized back-cast scenario workshops, which participants were imagining some ideal future and sharing the conditions that they consider necessary to reach the imagined future. The questions here are whether they could think of the future image and whether they became more future-oriented by participating in the workshops.

two waves social survey was conducted to answer the question, and to evaluate the citizen participation program for planning a master plan for environment Sapporo. We obtained two sample sets: participants of the workshops and non-participants, both sample sets were randomly sampled.

The results revealed a) participants evaluated the plan and the process more positively than non-participants, b) participants were more engaged in pro-environmental behaviors than non-participants, c) participants were more future-oriented than non-participants, and d) future orientation influenced the evaluations of the plan and the process, and those who had higher future orientation took account of the policy described future image. However, the

only one-time survey cannot explain whether future-oriented citizens participated in the workshops or participants became future-oriented by joining the workshops. Therefore, we conducted a panel survey asking to answer the questionnaire repeatedly. The results of the analysis of panel data revealed that the ratings of acceptance and procedural fairness did not change among the two waves. Nevertheless, procedural fairness had the strongest effects on acceptance consistently. Together with all results indicated that the stepwise participatory programs increased the public acceptance of the plan. Moreover, the back-cast scenario workshops were a useful tool for making people futures consideration.

It is rare in Japan that the multiple stepwise participatory programs involving both stakeholders and citizen panel were implemented in the policy-making process. The case in

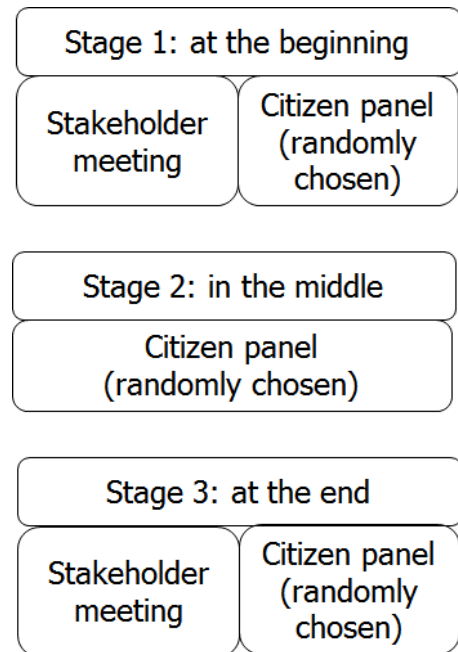


Fig. 8 Multiple stepwise participatory programs in Sapporo

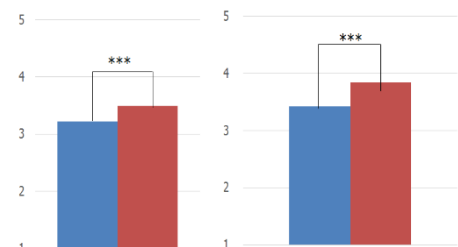


Fig. 9 Comparison of Future orientation and acceptance of participants and non-participants of the workshops

Sapporo could be a good practice as an advanced model. The reason for success was that the researchers and the practitioners collaborate with the city officers being engaged in the policy-making process. In brief, collaborative works in our research contributed responding to real society.

Summary of the outcomes

Contribution to the theoretical framework: Numerous literature in social dilemma has focused on how to foster cooperation. However, we propose a change of research framework from “resolving a social dilemma” to “resolving conflicts by making it a social dilemma.” Our findings, both laboratory and field studies, have demonstrated the significance of the shared recognition of the common goal. Social dilemmas, by definition, imply the existence of an ideal goal which is desirable for everyone. However, the ideal goal cannot be applied a single static description, rather is changing in social dynamics, which suggest that the ideal goal should continue to be adjusted by the involved people. In other words, it is essential that everyone, even in controversy, continues to ask the question and to discuss what the ideal goal is, which is acceptable for everyone, and which ought to direct provisionally and ought to be adjusted again. The process design for realizing this view should be investigated more.

Contribution to the practical policy-making: We, both researcher and the practitioners, were engaged in the actual policy-making process collaborating with many stakeholders, including NPOs and administrative officers responsible for making the plan. Our research was immediately the practice of responding to real society. Not just working together, we verified a new policy evaluation method; that is, it is possible to evaluate not only the outcome but also the process. That is connected with the process design for public decision making in complex situations involving conflicts between individual profit and public benefit. The process design should not be proceeded mono-linearly with a single decision body but should contain the multiple-centered process. We confirmed the effectiveness of the stepwise decision making process using both laboratory experiment and field survey, especially addressed significance the prior consent of the decision way in advance before beginning the process. These findings of process design would be applicable to many cases of policy-making with participatory programs.

Research products

Peer-review paper (15 in total)

1. Yokoyama, M., & Ohnuma, S. (2018.6.28). An experiment regarding stepwise decision making involving different stakeholders: approach from perspective of procedural fairness. *Sociotechnica*, 15, 1-11.
2. Ohnuma, S. & Kitakaji, Y. (2017.11.25). Social dilemma as a device for recognition of a shared goal: Development of “consensus building of wind farm game”. *Studies in Simulation and Gaming*, 25, 107-113.
3. Yokoyama, M., Ohnuma, S., & Hirose, Y. ((2017.11.30). Can veil of ignorance promote a consensus?: Game of the “siting for landfill disposal of waste”. *Studies in Simulation & Gaming*, 26, 21-32.
4. Miyauchi, T. (2017.9.28). How does social resilience originate from? – requirement firmadoptive governance. *Ecology and Civil Engineering*, 20(1), 143-146.
5. Kitakaji, Y., Sone, M., Sato, K., Kobayashi, T., & Ohnuma, S. (2016.11.30). Effects of imagining the other person on cooperation in a Prisoner’s Dilemma game. *Japanese Journal of Social Psychology*, 32(2), 115-122.
6. Mori, Y., Ohnuma, S., & Kloeckner, C. (2016.3.29). The effects of social ties and local environment on appropriate waste station maintenance of household waste: A case study in Sapporo. *Journal of Environmental Information*

Science, 44(5), 87-98.

7. Mori, Y., Kobayashi, T., Anpo, Y. & Ohnuma, S. (2016.3.28). The long-term effects of intrinsic motivation on household energy saving behavior: with actual energy-use and self-reported behavior. *Japanese Journal of Social Psychology*, 31(3), 160-171.
8. Aoyagi, M. (2016.9.26). Regulatory science and risk governance. *Japanes Journal of Risk Analysis*, 26(2), 97-102.
9. Mifune, N. Hizen, Y. Kamijo, Y. & Okano, Y. (2016.5.5). Preemptive striking in individual and group conflict. *PLoS ONE*, 11(5), e0154859, DOI: 10.1371/journal.pone.0154859.

Books (10 in total)

1. Horikawa, S. & Aoyagi, M. (2018). Environmental Sociology. *Encyclopedia of Environmental Economics and Policy*. Maruzen Co Ltd, Tokyo.
2. Miyauchi, T. (2018). Adaptive Process Management: Toward Sustainable Societies. T. Sato & N. Kikuchi (Eds.) *Local Environment Science: Challenge of Transdisciplinary Science*. University of Tokyo Press, pp.157-169.
3. Ohnuma, S. (2017.9). Psychology of global environmental issues. In K. Hanyu (Ed.) *Environmental psychology: series psychology and jobs*. Kitaohji Shobo, pp. 107-123.
4. Aoyagi, M. (2017). Climate change communication in Japan. *The Oxford Encyclopedia of Climate Change Communication*, Oxford University Press.
5. Ohnuma, S. (2017.3). Citizen participation and procedural fairness in a policy for reduction of household wastes: process design from planning to implementation in Sapporo. In T. Miyauchi (Ed). *How environmental conservation succeeds?: how to proceed "adaptive governance" on the fields*. Shinsen-sha, pp. 30-58.
6. Miyauchi, T. (2017). Walk, See, Listen: nature restoration of People. Iwanami Shinsho.
7. Kitakaji, Y. & Ohnuma, S. (2016). Even unreliable information disclosure makes people cooperate in a social dilemma: Development of the "industrial waste illegal dumping game". In Kaneda, T., Kanegae, H., Toyoda, Y., & Rizzi, P. (Eds.) *Simulation and Gaming in the Network Society*. Springer.
8. Hizen, Y. (2016). *Experimental Political Science*. Keiso Shobo.
9. Aoyagi, M. (2016). Risk Assessment, Risk Management and Risk Communication. *Trends in the Sciences*, 21(9), 32-34.

Lectures and presentations (61 in total, 3 invited speech, 21 international conference)

1. Ohnuma, S., & Yokoyama, M. (2018.6.29). Can back-cast scenario workshop make people future consideration? A case study of making a basic plan for environment Sapporo. *29th International Congress of Psychology*. (Montreal, Canada)
2. Kitakaji, Y., Ohnuma, S. & Hizen, Y. (2018.6.27). The effects of communication among selected members on the behaviors of non-selected members in a social dilemma situation. *29th International Congress of Psychology*. (Montreal, Canada)
3. Ohnuma, S. & Yokoyama, M. (2018.6.4). A policy decision making with multiple stepwise citizen participation program: A case study of revising the basic environmental plan Sapporo. Organized Session, AI technology for decision making and consensus building in complex societies. *The 32nd Annual Conference on the Japanese Society for Artificial Intelligence*. (Kagoshima, Japan).
4. Aoyagi, M., Huy, V., & Yoshida, A. (2018.3.28). Using In-depth interview at interviewees' homes with nationwide quantitative survey for understanding Southeast Asian lifestyles, *The International Workshop on Comparative Survey Design and Implementation*. (Limerick, Ireland)
5. Yokoyama, M., & Ohnuma, S. (2018.3.14). Stepwise decision making and procedural fairness on the long-term management of the designated waste facilities. *Society for Risk Analysis, Asia Conference*, [oral] (Kansai University, Osaka, Japan)
6. Yokoyama, M., Ohnuma, S., & Hirose, Y. (2017.11.4). Impact of experiencing a failure consensus building among stakeholders on fair judgment of decision under veil of ignorant: a study using designated waste disposal siting game. *The Annual Conference of Japan Association of Simulation and Gaming 2017 Autumn*, 2-5. (Hokkaido University of Science, Sapporo Japan)
7. Ohnuma, S., Kobayashi, T., Anpo, Y., Nakamata, T., Iino, M., & Yokoyama, M. (2017.10.29). Effects of descriptive norm on donation behavior: A social experiment at the top of Hakodate mountain. *The 58th Conference for the Japanese Society of Social Psychology*, 62. (Hiroshima University, Higashi-Hiroshima Japan)
8. Ohnuma, S. (2017.9.15). Energy and environmental issues as social dilemmas: comparison of gaming with

experiments in psychology. *The 1st colloquium of sectional research group for energy and environment: Japanese Association of Simulation & Gaming*. (Tokyo campus of Tsukuba University, Tokyo Japan) [Invited talk]

9. Kitakaji, Y., Hizen, Y., & Ohnuma, S. (2017.10.29). The effects of randomly selected group member communication on those members not selected to communicate in a public goods experiment. *The 58th Conference for the Japanese Society of Social Psychology*, 51. (Hiroshima University, Higashi-Hiroshima Japan)
10. Yokoyama, M., & Ohnuma, S. (2017.10.28). Stepwise approach combined with procedural fairness over the issue of siting for designated waste long-term management facility. *The 58th Conference for the Japanese Society of Social Psychology*, 10. (Hiroshima University, Higashi-Hiroshima Japan)
11. Hizen, Y. & Kurosaka, K. (2017.9.24). "Monetary Costs versus Opportunity Costs in a Voting Experiment". *Annual Meeting of Japanese Political Science Association 2017*. (Hosei University, Tokyo).
12. Miyauchi, T. (2017.9.21). Post-disaster co-management of natural resources: A case study from Kitakami area, Miyagi, Japan. *6th International Symposium on Environmental Sociology in East Asia*. (National Taiwan University, Taipei, Taiwan)
13. Ohnuma, S., Kobayashi, T., Anpo, Y., Nakamata, T., Iino, M. & Yokoyama, M. (2017.8.30). Determinants of intention to donate for the landscape of night view towards eco-friendly lights: A case of study of implementations of energy saving lights in Hakodate, Japan. *International Conference on Environmental Psychology, Book of Abstract*, p.189. (A Coruña University, A Coruña, Spain)
14. Aoyagi, M. (2017.9.1). Learning from Mass Media, the role of media reporters, and their effects on constructing of public understanding of science. *Meeting of the Society for the Social Studies of Science*, (Boston, USA)
15. Aoyagi, M. (2017.5.17). Public response to Japan's Super Cool Biz national campaign, *World Social Marketing Conference*. (Washington, USA)
16. Aoyagi, M. (2017.3.3). Regulatory Science and Risk Governance, *SRA Risk Policy Forum*, (Venice, Italy)
17. Hizen, Y. (2017.3.17). Future Design. *Seminar: Visioning Processes in Transdisciplinary Settings* (FEAST Project, Research Institute for Humanity and Nature, Kyoto)
18. Hizen, Y. (2017.2.17). Monetary Costs versus Opportunity Costs in a Voting Experiment. *The 2017 Asia-Pacific Meeting of the Economic Science Association*. (National University of Taiwan, Taipei)
19. Ohnuma, S. (2016.12.13). Process design of dialogue for fostering cooperation in a large scale society: from the perspective of social psychology. *Information Processing Society of Japan, 185th Intelligent Complexity System Colloquium*. (Nagoya Institute of Technology, Nagoya Japan) [invited speech]
20. Kobayashi, T., Anpo, Y., Nakamata, T., Iino, M., Yokoyama, M., Mori, Y., & Ohnuma, S. (2016.9.18). determinants of willing to pay for promoting LED night illumination in Hakodate. *The 57th Conference for the Japanese Society of Social Psychology*, p. 83. (Kwansei Gakuin University, Hyogo Japan)
21. Kobayashi, T., Anpo, Y., Nakamata, T., Iino, M., Yokoyama, M., Mori, Y., & Ohnuma, S. (2016.9.6). Determinants of willing to pay for supporting the night view change into LED: A questionnaire survey on tourists in Hakodate. *3rd Behavior, Energy, & Climate Change Conference*, 48. (Keio University, Tokyo Japan)
22. Kobayashi, T. & Ohnuma, S. (2016.7.28). Determinants of the adoption of high-cost energy-efficient household facilities. *31st International Congress of Psychology*. (Pacifico Yokohama, Yokohama, Japan).

Organized symposium (4)

1. Interim report of Topic-Setting Program to Advance Cutting-Edge Humanities and Social Sciences Research (Responding to Real Society), cohosted by Mita Philosophy Society. Process design for public decision making in complex situations involving conflicts between individual profit and public benefit: Towards the consensus of public opinion for the environmental policy. (Keio University, Tokyo) 24 May 2017
2. International Environmental Psychology Workshop. Contribution to the environmental policy from social psychology: Process design of public decision making. (Nara Women's University, Nara) 17 June 2017
3. The 1st Symposium on AI and Consensus Building. Hosted: Japanese Science and Technology Agency: Strategic Basic Research Program (CREST), Cohosted: Topic-Setting Program to Advance Cutting-Edge Humanities and Social Sciences Research (Responding to Real Society) Hokkaido University, Sapporo. 29 July 2017
4. The 2nd Symposium on AI and Consensus Building. Hosted by Japanese Science and Technology Agency, Strategic Basic Research Program (CREST); Cohosted by Topic-Setting Program to Advance Cutting-Edge Humanities and Social Sciences Research (Responding to Real Society) (Nagoya Institute of Technology, Nagoya) 12 December 2017