

Topic-Setting Program to Advance Cutting-Edge

Humanities and Social Sciences Research

(Program Title)

## Progress Report

(Summary of Final Report)

Theoretical and Practical Study for new RRI  
Framework: a study series of education,  
evaluation, and politics

[Project Title]

Core-Researcher: Ryuma Shineha, Ph.D

Institution: Osaka University

Academic Unit: Research Center on Ethical, Legal, and Social Issues.

Position: Associate Professor

Research Period: FY2017 – FY2020

## 1. Basic information of research project

Research Area	
Project Title	Theoretical and Practical Study for new RRI Framework: a study series of education, evaluation, and politics
Institution	Osaka University
Core-Researcher (Name, Academic Unit & Position)	Ryuma Shineha, Research Center on Ethical, Legal, and Social Issues, Associate Professor
Project Period	FY2017 – FY2020
Appropriations Plan (¥)	FY2017 JPY 2,925,000
	FY2018 JPY 4,972,500
	FY2019 JPY 4,095,000
	FY2020 JPY 1,170,000

## 2. Purpose of research

Currently, Responsible Research & Innovation (RRI) has played as key concept to think the relationship between science and society. Particularly, in Horizon 2020, RRI was the central concept of “science for/with society” program (von Schomberg 2011; EU Commission 2011; Sutcliffe 2011).

Theoretical discussions on RRI has been sophisticated in the light of four key perspectives of “anticipation”, “reflexivity”, “inclusion”, and “responsiveness” (Hilary 2011; Owen et al. 2012; Owen et al. 2013; Stilgoe et al. 2013). In the course of these discussions, RRI was expressed as “Responsible innovation means taking care of the future through collective stewardship of science and innovation in the present.” (Stilgoe et al. 2013: 1570). However, the difficulties and political issues on RRI has been also pointed out: increase of legitimacy and transparency during decision-making, evaluation system, educational contents, responsibility of knowledge production and future vision, the role of alibi-making on dual-use, and so on (Wickson & Carew 2014; EU Commission 2013, 2015; Stilgoe & Guston 2017).

To overcome these challenges mentioned above, we set three questions below:

- A) Analyzing practical challenges of RRI education, and making RRI education tool in the case of Stem Cell Science (SCR) and Regenerative Medicine (RM)
- B) Bottom up approach to create evaluation index of RRI, and conduct international comparison or RRI issues
- C) Comprehensive analysis of politics of RRI, focusing on dual use issues.

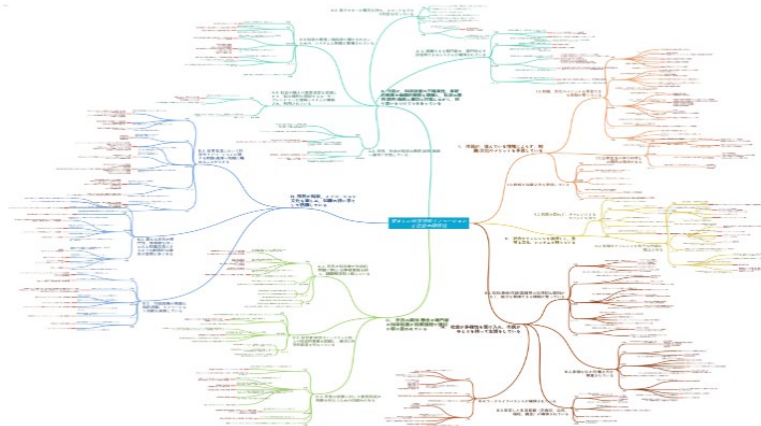
## 3. Outline of research (Including study member)

### Theme (A): RRI education in the case of SCR/RM

Yashiro Yoshimi - a group leader- and other members (Ryuma Shineha, Ekou Yagi, etc) made RRI educational/dialogue tool for SCR/RM, and conducted citizen workshop on “RM and society”. This workshop was conducted, collaborating with minor program of the graduate class of Osaka University (STiPS program). Through the workshop, many interests from the citizen participants were collected. Particularly, “if the RM bring

[illegible]

Bottom-up workshop for considering RRI index was designed and conducted repeatedly and summarized various framings on RRI as evaluation index. Simultaneously, international comparison on RRI issues was conducted, collaborating with Prof. Dr. Martin Bauer of LSE. This sub-theme was conducted mainly by Asako Okamura, Kei Kano, and etc.



Content analysis of RRI issues, focusing on websites of 133 biological societies, was conducted. The result were published in Shineha (2020). Also contents concerning SOGI in 243 sociological societies were also analyzed and published (Otuska & Shineha 2019). In addition, discussion on dual use in the national diet was analyzed with quantitative text analysis by Shishin Kawamoto and Mikihiro Tanaka. And then, its politics was discussed by Wataru Sano.

Figure 1 is a scatter plot showing the relationship between 13 variables and two dimensions, Dim1 (86.51%) and Dim2 (13%). The plot includes points for 'military', 'Military Research', 'science', 'budget', 'bill', 'self-defence', 'reform', 'UN', 'information', 'defence', 'development', 'Military & Civilian Purposes', 'technology', and 'Dual Use'. The axes are labeled Dim1 (86.51%) and Dim2 (13%).

gained through this project and previous studies (Shineha 2020).

#### Member list of research group

Researchers	Name	Affiliation, position
PI	Ryuma Shineha	Osaka University, Associate Professor.
Group leader	Asako Okamura	GRIPS, Expert.
Group leader	Yoshimi Yashiro	Kanagawa University of Human Health, Professor
Member	Wataru Sano	Kyoto University, Professor
Member	Shishin Kawaoto	Hokkaido University, Associate Professor.
Member	Mikihito Tanaka	Waseda University, Associate Professor.
Member	Kei Kano	Shiga University, Professor.
Member	Ekou Yagi	Osaka University, Professor.
Member	Tatsuo Oyama	GRIPS, Professor Emeritus.

#### 4. Research results and outcomes produced

The significant achievements of this project were publications of international comparison (Article 6), bottom-up RRI index generation (Article 13), and text book (Book1). Particularly, the text book “Responsible Governance of Science and Technology” is an important achievement to develop cross-disciplinary collaboration on RRI.

In addition to results above, we gained achievements such as making of RRI education/dialogue tool and gaining know-how of extracting citizen perspectives on RRI (Article 5), collaborative practices with emerging science fields, and analyzing politics and dual use discussions (Article 8), discussions on applications of our result to science education, and so on. However, “making guidelines for RRI on regenerative medicine” was remained as future works.

#### <Major Papers Published/Accepted>

##### (1) Journal article/ Book Chapter

1. Yasunori Yamashita, Hoang Ngan Giang and Tatsuo Oyama (2018), “Investigating the Performance of Japan’s Competitive Grant: Grants-in-Aid for Scientific Research System”, *International Journal of Higher Education*, Vol. 7, No.5, Sciedu Press.
2. Yamashita, Y., Giang, H. N. and Tatsuo Oyama. 2019. “Assessing the Performance of Japanese Major Universities through the Research Funding System”, *International Journal of Higher Education*, Vol. 8, No. 1, pp 1-18.
3. Ryuma Shineha. (2019) “Concepts of ‘Bio-Capital’ in STS” *Journal of Science and Technology Studies* .17: 37-54. (in Japanese)
4. Kahori Otsuka, Ryuma Shineha. (2019) “Current Status of discussions on Sexual Minority Discrimination in Sociological Academic Societies in Japan.” *Journal of Global Studies*, 6: 31-50. (in Japanese)
5. Yoshimi Yashiro, Ryuma Shineha, Yusuke Inoue, Tsunakuni Ikka, Atsuo Kishimoto, Jin Higashijima. (2020) “A Trial of Social Dialogu by the Japanese Society for Regenerative Medicine” *Journal of Science and Technology Studies*, 18: 137-146. (in Japanese)

6. Entradas, M., Bauer, M., O'Muircheartaigh, C., Marcinkowski, F., Okamura, A., Pellegrini, G., Besley, B., Massarani, L., Russo, P., Dudo, A., Saracino, B., Silva, C., Kano, K., Amorim, L., Bucchi, M., Suerdem, A., Oyama, T., and Li, Y. (2020). "Public communication by research institutes compared across countries and sciences: Building capacity for engagement or competing for visibility", *PLOS ONE*, July 2020. <https://doi.org/10.1371/journal.pone.0235191>.
7. Tatsuo Oyama. 2020. "Looking for and Aiming for an Asian OR Applicable to the Public Sector", *Journal of the Operations Research Society of China*, Online, DOI 10.1007/s40305-019-00291-8
8. Ryuma Shineha. (2020) "Regenerative Medicine and Society" Yuko Fujigaki et al. (eds) *The Challenges of STS 2: Case Studies*, The University of Tokyo Press: 211-224. (in Japanese)
9. Ken Kawamura, Daisuke Yoshinaga, Shishin Kawamoto, Mikihito Tanaka, Ryuma Shineha. "Exploring the Contexts of ELSI and RRI in Japan: Case Studies in Dual-Use, Regenerative Medicine, and Nanotechnology." In Tsuyoshi Matsuda et al. (eds) *Risk and the Regulation of New Technology*, Springer: in press.
10. Ekou Yagi. (2020) "Design for citizen workshop." Yuko Fujigaki et al. (eds) *The Challenges of STS 3: Methodologies for bridging plural fields and sites*, The University of Tokyo Press: 68-93. (in Japanese)
11. Ekou Yagi. "Suffering the Effects of 'Scientific Evidence'" in Kyle Cleveland, Scott Gabriel Knowles, and Ryuma Shineha (eds) *Legacies of Fukushima: 3.11 in Context*, University of Pennsylvania Press, accepted in press.
12. Ryuma Shineha. "For Consideration of Research Evaluation on humanities and social sciences" Ninomiya Y et al. (eds) *Anti-University Reform 2*, Nakanishiya Press, accepted in press. (in Japanese)
13. Okamura, A. and Nishijo, K. 2020. "Constructing vision-driven indicators to enhance interaction between science and society", *Scientometrics*,. <https://doi.org/10.1007/s1192-020-03598-z>. (査読あり・accepted in press)
14. Masanori Kataoka, Ken Kawamura. "What's Wrong with Dual-use Research? The Expected Value Approach and Beyond" *Japanese Journal of Science, Technology, and Society*, accepted in press. (in Japanese)

## (2) Book

- Ryuma Shineha. (2020) *Responsible Governance of Science and Technology*. Nakanishiya Press. (in Japanese)