

# High School Peace Proposal



March 16, 2018

# 目次

## I. ラーニングクラスター

1. プログラムの概要・・・・・・・・・・・・・・・・・・・・・・・・	2
-------------------------------------	---

2. ハイスクール平和提言・・・・・・・・・・・・・・・・・・・・	8
-----------------------------------	---

I. Adaptation to Climate Change in Maize Production in the Sahel

II. Peace-Building and Climate Change

III. Sustainable Tourism to Combat Climate Change

IV. Environmental Damage of Dismantling Nuclear Weapons

V. Protecting Human Rights from the Fear of Nuclear Weapons

VI. The Role of Religion for Nuclear Abolition

II. 飢餓の終息に向けた農業分野での国際協力（英語サマリー・日本語論文）・・・	123
--	-----

「ゼロハンガーを目指す食料流通システムの構築」

(トルコ)	3 年 1 組	依田	晴美
(シンガポール)	3 年 2 組	宮本	晴美
(ウクライナ)	3 年 3 組	田川	さくら
(アメリカ)	3 年 4 組	酒井	亮
(シエラレオネ)	3 年 5 組	本房	由香
(イギリス)	3 年 6 組	小川	藍

III. 各種コンクール・成果・・・・・・・・・・・・・・・・・・・・	140
-------------------------------------	-----

『世界津波の日』高校生サミット in 沖縄

日米露 3 国の高校生による核不拡散教育会議

国際理解・国際協力のための高校生の主張コンクール

漢語橋世界中高生中国語コンテスト

即興型英語ディベート全国大会・英語ディベート部

新聞掲載記事



Kansai SOKA Senior High School



Learning Cluster

2017-2018

# SGH Learning Cluster Program

## 【Program Overview】

Learning Cluster Program (LC) is part of Kansai Soka High School's Super Global High School (SGH) program to study global issues in English. The foundation of this program is created upon our school founder Dr. Daisaku Ikeda's Annual Peace Proposal, which called upon education to foster global citizens through exploration of the four fields of development, environment, human rights and peace. In the course of one year, students develop their language and research skills to deepen their understanding of global issues related to Sustainable Development Goals (SDGs) proposed by the United Nations from these four perspectives.

The purpose of this program is to provide students with the opportunity to deepen their understanding about current global issues that humanity faces and to nourish a sense of responsibility and hope through their research and autonomous learning. Through this program we hope that students will discover passion in their learning which will be carried out through their university studies, future career and lifework, which will lead to fostering the next generation of global leaders who will live contribute lives for the betterment of humanity.



Picture: Students during LC final presentation session

## 【High School Peace Proposal (HSPP)】

As a yearly final research project of the Learning Cluster Program, students are divided into groups of four-five students to conduct their own research on one global issues topic. This project includes detailed analysis of one global issue from each group provided with a concrete action for solution based on student's research, discussion, presentations and fieldwork throughout the year.

## 【History of Learning Cluster】

### 1<sup>st</sup> Class (2014-2015, SGHA)

- 15 students selected from grades 10-12
  - Group Research Topics (4 Fields)
    - Development: Renewable Energy
    - Environment: Water
    - Peace: Collective Self-Defense Act
    - Human Rights: Refugees in Japan
  - Tokyo Fieldwork



### 2<sup>nd</sup> Class (2015-2016, SGH 1<sup>st</sup> Year)

- 16 students selected from grades 11-12
  - Group Research Topics (4 Fields)
    - Development: Bullying in An Education
    - Environment: Peace Proposal for Environmental Education for the Future
    - Peace: Actions for High School Students Towards the Abolition of Nuclear Weapons
    - Human Rights: Suggesting Concrete Actions to Provide Basic Human Rights to Syrian Refugees
  - Tokyo Fieldwork, Overseas Fieldwork

Picture: Students during LC class

### 3<sup>rd</sup> Class (2016-2017, SGH 2<sup>nd</sup> Year)

- 24 students and 2 student advisers selected from grades 11-12
  - Group Research Topics (SDGs)
    - No Poverty (SDG 1): Child Poverty in Japan
    - Zero Hunger (SDG 2): Equalizing Food Distribution to Achieve Zero Hunger
    - Quality Education (SDG 4): Education for Nuclear Abolition
    - Gender Equality (SDG 5): Gender Equality through Education
    - Decent Work (SDG 8): An Educational Program for Japanese High School Students against Child Labor
    - Peace and Justice (SDG 16): Using Dialogue to Counter Terrorism and Create Inclusive Communities
  - Tokyo Fieldwork, Overseas Fieldwork

### 4<sup>th</sup> Class (2017-2018, SGH 3<sup>rd</sup> Year)

- 25 students selected from grades 11-12
  - Climate Change Research Group:
    - Adaptation to Climate Change in Maize Production in the Sahel
    - Peace-Building and Climate Change
    - Sustainable Tourism to Combat Climate Change
  - Nuclear Abolition Research Group:
    - Environmental Damage of Dismantling Nuclear Weapons
    - Protecting Human Rights from the Fear of Nuclear Weapons
    - The Role of Religion for Nuclear Abolition
  - Tokyo Fieldwork, Overseas Fieldwork

### 5<sup>th</sup> Class (2018-2019, SGH 4<sup>th</sup> Year)

- 22 students selected from grades 11-12

# Learning Cluster 2017-2018: Yearly Course Outline

## 【Aim】

This course is designed for students to deepen their understanding of global issues by thoroughly conducting academic researching SDGs topics throughout the year. All classes, discussions, and presentations were conducted in English.

## 【Context】

- School Day Saturdays, 1 Year
- 25 students from grades 11 and 12

## 【Selection Process of LC Students】

All students from grades 11-12 are eligible to apply for Learning Cluster. Students are expected to have an English fluency level of Eiken 2 or above with a strong interest in global issues research. Completion of SP during grade 10 is also required. The selection process includes the following tests:

- **Paper Test:**
  - Assess: Basic English ability
  - Reading, listening, and essay writing questions (Pre-1 Eiken / TOEFL)
- **Group Interview Test:**
  - Assess: English speaking, discussion, creativity, and leadership skills
  - Students discuss together in English to solve a prompt question related to global issues.
- **Individual Interview Test:**
  - Assess: students commitment and responsibility
  - Students are asked questions about their reasons for joining LC, study habits, club activities, etc.

## 【LC Teachers】

- Ramon Paras (USA/ Philippines, MA: TESOL)
- Swati Raj (India, MA: TESOL)
- Louis Butto (USA, MA: TESOL; PhD Candidate in Applied Linguistics)
- Ritsuko Rita (Japan, MA: TESOL)
- Kazuhiro Iguchi (Canada/ Japan, MA: TESOL)
- Kazunori Yamagishi (MA: TESOL)

## 【Materials】

- 2017 Peace Proposal
- A Forum for Peace
- Newspaper Articles
- TED Talks
- Library Books and Online Resources



Picture: Students during LC class

## 【2017-2018 Yearly Course Plan】

**1<sup>st</sup> Semester:** Students acquired a broad understanding of current global issues through discussions, presentations and lectures on founder Ikeda's Peace Proposal, global news, and SDGs. Students then were divided into two global issue themes: climate change and nuclear abolition. Students were further divided into three groups of 4-5 students and explored the theme from the perspectives of development, human rights, environment and peace. Students were then taught how to write the literature review and research questions section for their own High School Peace Proposal. With a general understanding of various global issues, literature review of one research topic, and questions for further research, students participated in a fieldwork to Tokyo to present and discuss their research topics with experts.



Picture: SDG workshop by UNDP Japan Director Tetsuo Kondo during Tokyo Fieldwork



Picture: Global citizenship workshop by Soka University Deputy-Vice President Maria Guajardo during Tokyo Fieldwork

**2<sup>nd</sup> Semester:** After gaining professional feedback from professors and experts during Tokyo fieldwork, students continued to complete their High School Peace Proposal by learning how to write the methodology and results sections. Based on the acquired knowledge, experience, and data collection, students create a proposal on climate change and nuclear abolition issues the perspective of high school students.



Picture: Students in front of United Nations University during Tokyo Fieldwork

**3<sup>rd</sup> Semester:** Several students were selected to participate in our third overseas fieldwork to California where they presented their completed High School Peace Proposal to local high school students, university professors, and experts. After coming back from fieldwork, students shared their learning experience from fieldwork and their completed High School Peace Proposal at the SGH final presentation session, presentation session for juniors, open campus and more.



Picture: Students presenting their High School Peace Proposal research at SGH Final Presentation Session



## High School Peace Proposal 2018

Learning Cluster  
Kansai Soka High School  
March 16, 2018

Kansai Soka High School's Super Global High School (SGH) Learning Cluster Program is an extracurricular class that teaches students to conduct academic research on global issues in English. The fourth class of Learning Cluster was comprised of 25 students and two research topics: climate change and nuclear abolition. In the course of one year from March, 2017 to March, 2018, students learned and researched about global issues related to Sustainable Development Goals (SDGs) set by the United Nations all in English. The foundation of this program is created upon Founder Dr. Daisaku Ikeda's Annual Peace Proposal, which called out for global education based on the four fields of development, environment, human rights and peace.

The aim of this program is to provide students with the opportunity to deepen their understanding about current global issues that humanity faces and to nourish a sense of responsibility and hope through their research and autonomous learning. Through this program we hope that students will discover passion in their learning which will be carried out through their university studies, future career and lifework, which will lead to fostering the next generation of global leaders who will live contribute lives for the betterment of humanity.

As the final research project of Kansai Soka High School's Super Global High School (SGH) Learning Cluster Program, six research groups of 4-5 students created a *High School Peace Proposal*. This project includes detailed analysis of global issues provided with a concrete action for solution based on student's research, discussion, presentations and fieldwork throughout the year.

It is with great pleasure to present to you the High School Peace Proposal 2018.

### Table of Contents

- I. Adaptation to Climate Change in Maize Production in the Sahel
- II. Peace-Building and Climate Change
- III. Sustainable Tourism to Combat Climate Change
- IV. Environmental Damage of Dismantling Nuclear Weapons
- V. Protecting Human Rights from the Fear of Nuclear Weapons
- VI. The Role of Religion for Nuclear Abolition

ラーニングクラスター2017 年  
ハイスクール平和提言

**Adaptation to Climate Change in Maize Production in the Sahel**  
サヘル地域におけるトウモロコシ生産の気候変動適応策

人権グループ

43 期 遠藤舞依、里内舞、川合勇一  
44 期 黒田恵美

2015 年、国連で持続可能な開発目標（SDGs）が採択され、その 13 番目のゴールに、「気候変動に具体的な対策を」があります。気候変動の影響は地球規模で見られ、影響の種類も様々です。気候変動の影響をもっとも大きく受けている地域のひとつがアフリカサハラ砂漠の南に広がるサヘルと呼ばれる地域です。サヘルではトウモロコシが重要な主食の一種で、そのトウモロコシの生産量が気候変動によって 2050 年までに 12%～40%下がると見られています。

気候変動への対策として主にミティゲーションと呼ばれる緩和策とアダプテーションと呼ばれる適応策の二種類があります。なかでも、地球規模の緩和策に比べ、より地域レベルでの対策が可能なアダプテーションに注目し、研究をしました。そして私達は、サヘルにおける農業の現状を改善する提案を作成するために、二つのリサーチクエスチョンを考えました。

1. サヘルのトウモロコシの生産はなぜ気候変動に対して脆弱なのか。
2. どのようなアダプテーションがサヘルの気候変動への対処に効果的か。

これらのリサーチクエスチョンをもとに、私たちは三人の教授にインタビューを行いました。そして、サヘルのトウモロコシ生産が気候変動に脆弱な原因には、トウモロコシ農業が雨水などの天然資源に頼っているということや不十分なガバナンスがあることが分かりました。また、適応策の一種である作物多様化については、現地の人々の食文化への影響があること、農業に利用するための気候変動シミュレーションモデルの情報が容易に現地の人々に手に入らないことを受け、現地の人々の食文化に配慮した注意深い作物多様化の実践と気候変動シミュレーションのデータを専用のスマートフォンアプリを作り、サヘルの人々に提供することを提案します。

## **Adaptation to Climate Change in Maize Production in the Sahel**

In 2015, the United Nations released the Sustainable Development Goals as a successor to the Millennium Development Goals. SDGs include 17 goals, and the 13th goal is focused on climate change, which affects the environment in many ways. Although climate change may not appear to be a human rights' issue, it actually affects the right to access food, and the people in the Sahel are among the most influenced. This paper focuses on how Sahelian people can ameliorate the effects of climate change on maize production, their staple food, through agricultural adaptations.

### **Literature Review**

#### **Climate Change and the Sahel**

Climate change refers to “a change in the usual weather found in a place” (Stillman, 2014). Climate change is happening all over the world, causing droughts, disturbing the regular climate and diminishing available lands for agriculture.

The Sahel is a region stretching over the southern Sahara Desert, crossing the countries of Senegal, Mauritania, Mali, Burkina Faso, Niger, Chad, Sudan, and Eritrea. The Sahel belongs to one of the driest regions on the globe, sub-Saharan Africa, and at the same time, one of the poorest. According to Africa Renewal Online (Harsch, 2017), in the Sahel, “Even in normal years, millions are in a permanent state of food insecurity.” In fact, “nearly 25 percent of the world’s malnourished population lives in sub-Saharan Africa” (Chu, 2017).

#### **Maize as a Staple Food in the Sahel**

Maize, or corn, is a staple food in the Sahel. Indeed, 50 percent of the population in sub-Saharan Africa consume maize (CGIAR, 2016). Also, maize cultivation covers nearly 17 percent of the estimated land in the sub-Saharan Africa (CGIAR, 2016). Sub-Saharan Africa

## ADAPTATION TO CLIMATE CHANGE

is the region where “more than 300 million people depend on maize, as their main food source” (Chu, 2017).

According to MIT News (Chu, 2017), “Maize is the most widely harvested agricultural product in Africa and is grown by small farmers who rely heavily on rainwater rather than irrigation.” Therefore, maize production in the Sahel is particularly susceptible to climate change, caused by the uncertain patterns of rainfall. Consequently, such effects of climate change will likely cause people in the Sahel to face serious hardships in food security.

### **Impact of Climate Change on Maize Production in the Sahel**

As maize production in the Sahel greatly depends on precipitation, the uncertain rainfall patterns and droughts caused by climate change could easily reduce maize production in the Sahel. “Maize is a relatively drought-sensitive crop in a region where agricultural production is mostly rainfed (Chu, 2017).” If the world’s temperature rises by 2 degrees celsius by 2050, the maize production in the Sahel is expected to decrease by 12-40% (Ramirez & Thornton, 2015). Since maize is a staple food in the Sahel, this drop in maize production is likely to cause a great number of the population to suffer from possible food shortages. Therefore, their human rights would be violated because access to food would be denied due to climate change.

### **Mitigation and Adaptation**

There are generally two main ways to tackle climate change: mitigation and adaptation. Mitigation refers to “an anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases (IPCC, 2007).” That is to say, actions that reduce the world’s temperature, which is a major cause of climate change, will reduce the amount of greenhouse gas, such as CO<sub>2</sub>. These are crucial. Adaptation means “adjustment in natural or human systems to a new or changing environment (IPCC, 2001).” While mitigation addresses the fundamental cause of climate change, adaptation handles the possible damage or effects

## ADAPTATION TO CLIMATE CHANGE

caused by climate change. Since mitigation involves every country on a global scale, it is difficult to assess the effect of mitigation. Adaptation is more realistically important to make a significant impact since people in the Sahel are not large contributors to climate change and do not have enough power to deal with the damages. This paper focuses on local adaptation.

### **Adaptation Methods**

Adaptation of agriculture is important in the fight against climate change so that the Sahelian people can obtain their right to food. There are various ways that adaptation can be employed in agriculture to alleviate the effects of climate change, and in this section, some of them are discussed.

One type is soil adaptation. Chemical adaptation can be used to develop soil fertility. The chart provided by the Alliance for a Green Revolution in Africa (Africa Agriculture Status Report, 2014) reveals the relationship between the adoption rate of four land management practices and the profits made by each in Sub-Saharan Africa. The land management practices were classified into four kinds: ISFM (Integrated Soil Fertility Management), organic input, fertilizer, and nothing (no adaptation). ISFM is a set of agricultural practices adapted to local conditions to maximize the efficiency of nutrients, water usage and to improve agricultural productivity. The first three practices of adaptation help to regulate climate change by increasing soil carbon over time. These produce more profits than doing “NOTHING (in other words, land without practices of adaptation of soil).” Therefore, soil adaptations not only led to profit, but also, to the growth of enough crops. In contrast, as shown in the chart, “NOTHING” makes the least profit of the four practices. In this way, adoption of chemical adaptation to the soil could be considered one of the most effective ways to withstand climate change. (Africa Agriculture Status Report, 2014)

**Table 2.1 Adoption (%) and profitability (US\$/ha/year) of soil fertility management practices in SSA**

COUNTRY	ISFM	ORGANIC INPUTS	FERTILIZER	NOTHING
Mali	0	11	23	66
Uganda	0	68	1	31
Kenya	16	22	17	44
Nigeria	1	28	23	47
Malawi	8	3	52	38
Tanzania	1	3	1	95
Mali	18	37	16	27
	ISFM	FERTILIZER	ORGANIC INPUTS	NOTHING
Adoption rate (%)	6.2	19.1	24.6	49.8
Profit (US\$/ha/year) <sup>a</sup>	36.5	24.6	15.1	10.4

(Africa Agriculture Status Report, 2014)

### Simulation Model

Simulation model systems are another way of adaptation. Simulation model systems can forecast the future and help people make plans to prepare for the effects of climate change; information can be gathered regarding the harvest season or irregular weather patterns. Three models are discussed.

**Global climate model.** According to the Intergovernmental Panel on Climate Change (IPCC, 2013), the global climate model is a system that represents physical processes in the atmosphere, ocean, cryosphere and the land surface from increasing greenhouse gas concentrations. The system also considers crops, pests, weather and other influences.

**Crop simulation model.** The crop simulation model is a simulation system that estimates future yield of crops based on the climate condition through computer analysis. There are simulation systems at some institutions. For example, there are the Agricultural Production Systems Simulator, (APSIM Initiative, 2007), Cropsyst (Washington State University, 2017), and DSSAT (Hoogenboom, et al., 2017). Also, each of them are unique and are used in different ways, so they should be used with different applications in mind towards creating predictable scenarios (Yin & Struik, 2010).

### **Simulations lead by MIT.**

The Food and Agriculture Organization (2017) has developed a crop model system called AquaCrop, which is a water-related crop model, and it authorizes everyone to utilize the modeling. Actually, the Massachusetts Institute of Technology has conducted a simulation of maize growth in the African fields by taking a multi model approach: a combination of a global climate model in an open-source crop model - Aquacrop (2017). First, they divided the continent into a grid pattern, with each grid cell measuring approximately 200 square kilometers and applied the crop model to simulate maize growth for each grid cell. Second, they input some information into each local grid, such as properties of the soil and the area of harvested crops in a given region. In the worst case estimate, the Sahel would experience widespread yield losses of up to 50 percent. It is necessary to consider multifaceted approaches to adapting climate change such as farm-scale changes: switching cultivars, expansion of irrigation and nutrient management, changes in planting dates, and increased institutional capacity like insurance programs, research support, and improvements in food transport (Dale, et al., 2017).

### **Research Questions**

This paper seeks to illuminate what kind of adaptation is the most effective in the Sahel for the purpose of adjusting the maize production to climate change.

#### **1. Why is maize production in the Sahel fragile to climate change?**

This question seeks to answer why the Sahel region is especially fragile to climate change. Although climate change happens in many places on the earth, there are countries that are resilient to climate change. Also, some countries can rebuild quickly although they are damaged by climate change. Understanding what key factors determine resilience among

countries in the region would help suggest what kinds of adaptation methods are most effective for adjusting maize production in the Sahel.

### **2. What kinds of adaptation methods are effective to cope with climate change in the Sahel?**

This paper has mentioned several adaptation methods used in maize production to climate change. However, since these adaptation methods are not enough, it is assumed that there are other effective types of adaptation to climate change in maize production. Therefore, this research further investigates other kinds of adaptation methods.

## **Methodology**

### **Research Question 1**

To analyze the Sahel's vulnerability, several actions were undertaken, which involved doing further literary research, and conducting interviews.

First, a report entitled, "*Beyond Any Drought,*" (Trench, et al, 2017) published by the International Institute for Environment and Development (IIED), was investigated more deeply since it discusses issues that are covered in this paper.

Second, from October 7th to October 19th, 2017, an email interview on climate change and adaptation methods was conducted with Shinjiro Sato, professor of the Department of Environmental Engineering for Symbiosis at Soka University, Hachioji, Japan. The interview was conducted in order to assess the relationship between adaptation methods and maize production in the countries of the Sahel. The following two questions were submitted seeking to uncover better adaptation methods and to assess the effectiveness of a diversification of crops, which we assumed would contribute to reducing the heavy dependence on maize in the Sahel.

## ADAPTATION TO CLIMATE CHANGE

Q1. Aside from soil adaptation, what kind of effective adaptation methods for maize production exist?

Q2. Is the realization of a diversity of crops practical in the Sahel?

Third, on November 4th, 2017, email interviews on climate change and adaptation methods were conducted with Mr. Yasuaki Hijioka, Head of the Regional Environmental Impact Assessment Section of the National Institute for Environmental Studies, Ibaraki, Japan and with Professor Yuji Masutomi, professor in Earth Environmental Studies at Ibaraki University, Japan. They were both asked the same three questions. These interview were conducted in order to assess the effectiveness of climate-change scenario models as an adaptation method in the Sahel and to seek further adaptation methods for maize production in the Sahel. The following three questions were submitted:

Q1. Does the promotion of model systems in the Sahel contribute to raising the adaptability of maize production to climate change?

Q2. How does the information generated by model systems reach and apply to the people in the Sahel?

Q3. What kind of adaptation method do you think is suitable for the environment in the Sahel?

The results of these interviews are reflected in the suggestions offered in the proposal section of this research on how people in the Sahel could adapt maize production to climate change.

## Results

Research question 1 asks why maize production in the Sahel is fragile to climate change. The report entitled, *"Beyond Any Drought,"* which explores the reasons of vulnerability in Mali, is instructive. The report categorizes the reasons into four

## ADAPTATION TO CLIMATE CHANGE

groups-agro-climatic, governance, trade and markets, and for other reasons. As can be seen in the chart from the report, there are many factors that impact the vulnerability of a country to climate change. Basically, the reason the Sahel is vulnerable is because of its dependence on natural resources, poor access to services and weakness from decentralization.

Agro-climatic	Governance	Trade and markets	Other
• Drought/Irregular rain	• Political marginalization	• Exchange rate of US Dollar/Euro	• No proper study on vulnerability has been done
• Climate	• Poor management of emergencies	• Oil price	• Lack of technical knowledge
• Lack of land available for cultivation		• World markets in rice, cotton, wheat	• Breakdown of family
• Low production		• Perverse interventions in cotton	• Continued pauperization
• Locusts		• Subsidies that pervert prices	• Vulnerability differs from zone to zone
• Inadequate/poor water management		• Unstable markets in grain and livestock	• Structural forces
• Types of production practised		• Inadequate mechanisms for moving food to permanent deficit areas	• Insecure land tenure (poor excluded from ownership).
• Extensive monoculture		• No transformation in Mali but export of raw materials	• Difficult access to credit
			• Absence of agricultural insurance

(Beyond Any Drought, 2017)

### Interview with Professor Sato

Question 1: Aside from soil adaptation, what kind of effective adaptation methods for maize production are there? He said that “I think we can promote a variety of improvements. In fact, a variety of new breeds that are resistant to the dry climate. Also, there are breeds that are resistant to high humidity.”

Question 2: Is the realization of a diversity of crops practical in the Sahel? He answered that, “I think the idea of changing the staple diet of the people in the Sahel is not very practical. Food culture can be considered almost the same as identity. Still, the diversification of crops can probably help the Sahelian people in difficult circumstances. For example, when maize production is severely damaged, a variety of food could work as a complementary diet to prevent poverty and hunger. When promoting the diversification of

## ADAPTATION TO CLIMATE CHANGE

crops, it is important to ensure that the crops can be incorporated into the environment of the Sahel in terms of the environment, the financial situation, the technological situation, and the availability of human resources. The crops will not necessarily be accepted by the residents in the Sahel. It may not be easy to modify the diet of Sahelian people.”

### **Interview with Professor Hijioka**

Question 1: Does the promotion of model systems in the Sahel contribute to improving adaptability of maize production to climate change? Mr. Hijioka answered, “I think it is possible to introduce technology from developed countries to developing countries, and they can benefit from the established system. However, in general, model systems often include errors: the predicted result may not match the real situation. Therefore, they need to adjust model parameters using observational data, or improve the model systems. Since expertise is required to implement the process, only experts could cope with the situation and obtain the needed information.”

Question 2: How does the information generated by model systems reach the Sahelian people and how can it be applied to their circumstances? He said, “Unless the data is provided freely, it is mostly provided through international organizations or governments. When trying to provide information for Africa, establishing a framework is necessary. Research results are often published in papers or reports, but they are not provided as digital data, which makes it hard for those who hope to actually use the data.”

### **Interview with Professor Masutomi**

Question 1: Does the promotion of model systems in the Sahel contribute to improving adaptability of maize production to climate change? He said that “I think the introduction of model systems could effectively reduce the fragility to climate change. There are two main roles of modeling systems: to know the future effects of climate change and to

## ADAPTATION TO CLIMATE CHANGE

analyze the cause of the effects. As for the disadvantages of model systems, it can forecast incorrectly. Therefore, it is important to recognize the uncertainty of model systems.”

Question 2: How does the information generated by model systems reach the Sahelian people and how can it be applied to their circumstances? He stated that “so far, the anticipated results have usually been published in papers only, but I suppose the current trend of using the Internet will gradually improve the accessibility to the data.”

Question 3: What kind of adaptation method do you think is suitable for the environment in the Sahel? He stated that “for droughts, introducing irrigation and a strong varieties of crops to contend with a dry climate might be effective. For floods, constructing dams and introducing these tough varieties might be efficacious to withstand floods.

### Discussion

This section discusses the findings from the results in terms of each research questions.

Research Question 1: Why is the maize production in the Sahel fragile to climate change? In the paper, *"Beyond Any Drought."* the vulnerability of the Sahel caused by many factors. One of the biggest reasons is climate change. Recent irregular rain patterns and drought affect agriculture in the Sahel. Furthermore, 70-80 percent of the population is too dependent on natural resources, so it makes them more vulnerable. As for the weakness in governance, emergency management is very poor and there is also corruption, so it makes the situation more difficult to overcome.

Research Question 2: What kinds of adaptation methods are effective to cope with climate change in the Sahel? Professor Sato suggested that it is possible to promote the

## ADAPTATION TO CLIMATE CHANGE

plantation of breeds that are resistant to dry or wet climates for those who find it difficult to access food because of climate change. This can be a good adaptation of agriculture.

Professor Sato also emphasized that the introduction of crop diversification should be discussed well because the Sahelian people already have their own culture of food. It is necessary for us to comprehend the historical culture of food as well as the agricultural aspects. He thinks that culture should be given priority since the food culture is closely connected to the identity of the local people, and if the situation is carefully considered, then it may be possible to promote a diversity of crops.

Both Professor Masutomi and Professor Hijioka agreed with the idea of introducing model systems. However, Professor Hijioka mentioned that model systems often include errors such as when a predicted result did not match the real situation. Hence, it is necessary to adjust the model parameters using observational data, or improve the model systems. His cautious observation provided us an important perspective. Technology is not perfect. People need to be careful when they use model systems. Therefore, thinking carefully about the advantages and disadvantages of such systems is necessary.

Both Professor Masutomi and Professor Hijioka expected that the local people could not easily access the information from the calculations provided by the model systems. The reason for such a difficulty is that the information is not generally accessible as digital data, but rather found in reports or papers. Thus, the people cannot work with the data effectively. For that reason, the data generated by the systems is still not applicable toward climate adaptation for the Sahelian people. To improve the situation, Professor Masutomi mentioned that it would be useful to digitize this information and make it accessible to all people through various applications on their electronic devices, such as mobile phones and computers, in the near future.

## ADAPTATION TO CLIMATE CHANGE

Professor Hijioka suggested some adaptation methods for droughts and floods. The methods he suggested were to introduce other crops which can tolerate climate change. However, as Professor Sato noted, given the difficulty of introducing other crops as staple foods, it is important to consider the culture of the people in the Sahel in order to successfully implement the diversification of crops.

### **Proposal**

Based on the research in this study, two suggestions are offered.

First, it is necessary to implement a diversification of crops with deep respect to Sahelian people's food preferences. This should be considered seriously. In countries of the Sahel, people also produce rice, millet and so on, which are considered common foods as well as maize. This indicates that it might be possible to consider other food besides maize in such countries. Through promoting diversification of crops, it is important to respect their existing food culture, so we think deep discussion with Sahelian people is very important.

Second, the creation of new applications for cell phones that can visually show how the climate will change in the future should be created to enable Sahelian people to easily access the information calculated by model systems. Since the information calculated by simulation models is usually shared through papers or reports, it is not very accessible by ordinary people. Also, the app can provide agricultural strategies such as how to effectively use fertilizer, farming machines, and report on market fluctuation news and stock information. One of the main causes of chronic vulnerability is that farmers cannot acquire the necessary knowledge to make adaptations in their production. Given the rapidly rising penetration rate of cell phones in the Sahel, introducing applications would help the Sahelian people to adjust maize production to climate change. For instance, the number of cell phone subscribers in Senegal exceeded 99.9 % of the population. Moreover, the rate of people who make phone

## ADAPTATION TO CLIMATE CHANGE

usage contracts is 139.6% of population in Mali. On the other hand, some countries in the Sahel such as Niger (46.5%) and Eritrea (7.0 %), do not have so many people who use cell phones. This is still room for improvement. Therefore, we should consider the possibility of sharing these possibilities thoughtfully, and encourage the use of applications to help manage productive agriculture.

### **Limitations**

Although we hoped to discover the reasons why some countries are fragile or strong toward climate change from the beginning, we could not obtain enough information to determine the factors differentiating certain countries from others in terms of resilience to climate change. Examining differences such as financial factors and harvesting areas more concretely would be needed to determine the exact nature of vulnerability. Also, due to time constraints, we could not survey many experts in the field. More interviewers would have further helped us find more methods and reconfirmed the effectiveness of the methods suggested in the proposal section.

### **Conclusion**

This research sought to uncover what kinds of adaptation methods can help Sahelian people to survive the severe effects of climate change through agricultural adaptations. Climate change is not someone else's problem, it is a problem shared by everyone on this planet. People might not recognize that they are unconsciously violating the human rights of people on the other side of the world. To realize this shared responsibility might be the first step to take. Adaptation is the key to protect the human rights of the people in the Sahel.

### References

- Alliance for a Green Revolution in Africa., (2014). *Africa Agriculture Status Report*. Retrieved from <https://reliefweb.int/sites/reliefweb.int/files/resources/agra-africa-agriculture-status-report-2014.pdf>
- APSIM Initiative., (2007). Agricultural Production Systems Simulator. Retrieved from <http://www.apsim.info/AboutUs.aspx>
- CGIAR., (2016). Why Maize. Retrieved from <http://maize.org/why-maize/>
- Chu, J.,(2017). Climate change to worsen drought, diminish corn yields in Africa. *MIT News*. Retrieved from <http://news.mit.edu/2017/climate-change-drought-corn-yields-africa-0316>
- Dale, A., Fant, C., Strezpek, A., Lickley, M., Solomon, S. (2017). Climate model uncertainty in impact assessments for agriculture: a multi-ensemble case study on mizen sub-saharan Africa. *Earth's Future*, 5, 337-353. Retrieved from <http://onlinelibrary.wiley.com/doi/10.1002/2017EF000539/epdf>
- Food and Agriculture Organization of the United Nations. (2017). AquaCrop. Retrieved from <http://www.fao.org/aquacrop/software/aquacropstandardwindowsprogramme/en/>  
<http://www.fao.org/3/a-i7179e.pdf>
- Harsch, E., (2017). A New Face of the Sahel. *Africa Renewal Online*. Retrieved from <http://www.un.org/africarenewal/magazine/august-november-2017/new-face-sahel>
- Hoogenboom, G., C.H. Porter, V. Shelia, K.J. Boote, U. Singh, J.W. White, L.A. Hunt, R. Ogoshi, J.I. Lizaso, J. Koo, S. Asseng, A. Singels, L.P. Moreno, and J.W. Jones. (2017). Decision Support System for Agrotechnology Transfer (DSSAT) Version 4.7. DSSAT Foundation, Gainesville, Florida, USA. Retrieved from <https://DSSAT.net>
- IPCC, (2001). Climate Change: Synthesis Report. Adaptation. *Annex B. Glossary of Terms*. Retrieved from <http://www.ipcc.ch/ipccreports/tar/vol4/index.php?idp=204>
- IPCC, (2007). Differences, similarities and complementarities between adaptation and mitigation. *IPCC Fourth Assessment Report: Climate Change 2007*. Retrieved from [https://www.ipcc.ch/publications\\_and\\_data/ar4/wg2/en/ch18s18-1-2.html](https://www.ipcc.ch/publications_and_data/ar4/wg2/en/ch18s18-1-2.html)
- IPCC, (2013). Climate Change 2013: The Physical Science Basis. Retrieved from <http://www.ipcc.ch/report/ar5/wg1/>
- Pippa Trench, John Rowley, Marthe Diarra, Fernand Sano, Boubacar Keita (2017). *Beyond Any Drought*. Retrieved from [https://reliefweb.int/sites/reliefweb.int/files/resources/F43A31DC485EF113C12573150037215B-Full\\_Report.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/F43A31DC485EF113C12573150037215B-Full_Report.pdf)

## ADAPTATION TO CLIMATE CHANGE

- Ramirez-Villegas, J., Thornton, P.K. (2015). Climate change impacts on African crop production. *CGIAR Research Program on Climate Change, Agriculture and Food Security*. Retrieved from [https://cgspace.cgiar.org/bitstream/handle/10568/66560/WP119\\_FINAL.pdf](https://cgspace.cgiar.org/bitstream/handle/10568/66560/WP119_FINAL.pdf)
- Stillman, D., (2014). What Is Climate Change? *NASA Knows*. Retrieved from <https://www.nasa.gov/audience/forstudents/k-4/stories/nasa-knows/what-is-climate-change-k4.html>
- Washington State University, (2017). Cropsyst. Retrieved from [http://modeling.bsyse.wsu.edu/CS\\_Suite/cropsyst/index.html](http://modeling.bsyse.wsu.edu/CS_Suite/cropsyst/index.html)
- Yin, X., Struik, P. (2010). Modelling the Crop: From System Dynamics to Systems Biology. *Journal of Experimental Botany*. Retrieved from <https://academic.oup.com/jxb/article/61/8/2171/486652/Modelling-the-crop-from-system-dynamics-to-systems>

ラーニングクラスター2017 年  
ハイスクール平和提言

**Climate Change and Peace-Building**  
平和構築による気候変動の解決に向けての提言

平和グループ

43 期 園木智世、坂井美紀、山岸世来

44 期 好井匠人、仲桜良

私たちは、気候変動が誘因となって引き起こされる水問題についてリサーチを行いました。なお、リサーチ内の「争い」については、コミュニティレベルの緊張状態を指します。その争いの解決策を示すため、緯度、気温、降水量、そして生活水準の4点において類似点を持つアメリカのサクラメント市、オーストラリアのパース市で起こっている水問題と争い、そして日本の香川県の干ばつに焦点を合わせて研究しました。例として、サクラメント市では気候変動による三角州の水位の下降が引き金になり、灌漑で使う農家と、三角州内の魚の住処の保護と環境保護を訴える漁師や環境保護団体の間に争いが起こっています。またパース市で起こっている対立の1つには、ウォーターパークの水の過度の水の使用に対し、節水を法的に強いられるパース市民の抗議の声が上がり、緊張状態が続いていることが挙げられます。そこで、私たちは干ばつによって発生する緊張状態を解決する方法を探るため次の3つの設問を考えました。

香川県が干ばつに見舞われた時に用いられた緊張状態の解決策を、サクラメント市とパース市の緊張状態を解決するために用いるのは可能か。

水の利用をより持続的なものにするために用いられるシステムや技術は存在するか。

それらのシステムや技術はサクラメント市とパース市で起こる干ばつによる緊張状態を解決するためにどのようにして適応できるか。

私たちは11月初旬に7人の専門家に水問題と気候変動に関するインタビューをメールを用いて行い、そのうち5人の専門家から返事を頂くことができました。また、日本の香川県、アメリカのカリフォルニア州とオーストラリアのパース市の干ばつについて事例研究を行いました。インタビューより私たちは、人々の生活の中でどれくらい水が使われているかを「見える化」することが重要だと思いました。また、香川県に住む人々の干ばつの経験から、協力こそが干ばつを乗り越える上で必要な力であると結論付けました。よって、私たちは水管理システムを家庭や公共施設に取り付けることを提言します。このシステムには、①水の使用量と使う目的を見える化する、②適当な水の使用量の提案をする役割があります。そして、このシステムのおかげで市民、政府、企業が協力しあい、水の使用や節水への意識を高めることができます。最後に、水は地球上の全ての生き物にとって必要不可欠なものです。その大切な水の資源を私たち人類が責任をもって、気候変動の脅威から守るべきではないでしょうか。

### **Peace-Building and Climate Change**

While human beings pursue economic growth, environmental effects have been disregarded. The environmental effects triggers abnormal weather patterns and destroy ecosystem of the earth. Due to the changes in the ecosystem, many creatures are endangered, and human activities, such as fishery and agriculture, are affected. In order to solve climate change, many measures have been carried out. Among many solutions for climate change, we shall focus on climate change from the peace perspective.

### **Literature Review**

#### **Definition of Conflict and Peace-building**

According to Peacebuilding Support Office of United Nation, peace-building efforts should be taken during conflict, not after conflict. Also, national development should be the first step of any peacebuilding measures. In other words, the purpose of peace-building is to reduce the risk for countries to go back to conflict by making nations resistant against conflicts through better conflict management and strengthen the foundations for sustainable peace and development. Any peacebuilding measures should be suitable for the country. Also, Global Partnership for the Prevention of Armed Conflict (2017) said peacebuilding should address social and political sources of conflict as well as reconciliation. Based on these findings, we define peacebuilding as taking action to reduce risks of conflict in order to strengthen the foundations of a peaceful community.

At first, in order to understand what peace means, we researched about conflicts over water, which are happening around the world. Many violent conflicts are triggered by political and economic causes. As cooperation with governments is necessary to solve problems at international level, we felt it was beyond what we as high school students can do, and therefore we excluded water problem at the international level from the target of this

research. For the purpose of this proposal, we define conflict as tension between two parties over water issues caused by climate change.

### **Current Solution**

Currently, many measures are applied to tackle climate change and the effects caused by climate change. According to NASA (2017), there are two major categories of solutions for reducing and overcoming climate change: mitigation and adaptation. Mitigation refers to the reduction of the flow of greenhouse gases released into the atmosphere. Greenhouse gases are emitted by using fossil fuel through driving cars, flying airplanes, etc. By reducing the emission of greenhouse gases caused by human development, the pace of global warming will be slowed down.

Adaptation refers to adjustments to present or expected future climate, and also one of the ways to build resilience to climate change. Even if the measures to stop global warming and mitigate the pace of global warming are successful, the effects of climate change will still give tremendous impact on human lives for a certain period of time. Therefore, people's lifestyle need to adapt to climate change so that people can survive and make a living in the face of abnormal weather. In order to tackle the effects of climate change, some measures such as adaptation and mitigation are currently being carried out.

### **Research Questions**

We shall focus on what happened in the United States and Australia, which are the top countries that export virtual water to Japan, as case studies. Virtual water refers to the volume of fresh water used to produce a particular product, measured at the place where it was actually produced. Kenji Fuma (2014) said that Japan has been importing virtual water because Japan's agricultural production cannot meet its food demand. Compared with other developed countries, Japan's food self-sufficiency ratio based on calories is low. However,

Japan has to face world's water shortages from now, since water demand around the world will continue to increase in the future. In addition, droughts can decrease the amount of crops and virtual water, and it will give a large negative impact on Japanese life. Although Perth and California export a lot of virtual water, which leads to less water available for other human activities as a result, farmers have no choice except to export crops which use lots of water to earn higher profits. Thus, there is a strong relationship between Japanese life and drought in Australia and California. However, we have some limitations to our research because we are high school students. Therefore, we are interested to find out what kind of adaptation approaches can be taken as high school students. In the course of our research, we found that Kagawa, which had overcome its own water conflict, is very similar to Sacramento and Perth. Thus, we will also research how people in Kagawa, Sacramento, and Perth can combat environmental damage caused by climate change. In the following section, we shall explain why we chose these three places for further analysis; and before we begin, here are our research questions:

1. Is it possible to apply the experience of conflict resolution in Kagawa to conflicts in Sacramento and Perth?
2. Are there any systems or technology to make water usage more sustainable?
3. How can this be applied to resolve conflict in Sacramento and Perth?

Now, we shall compare the features of these three places.

### **Similarity and Differences between Kagawa, Sacramento, and Perth**

The basic information in Kagawa, Sacramento, and Perth were described as following. There are some differences among these places. The population is about 0.968 million people in Kagawa, 0.485 million people in Sacramento, 2.04 million in Perth. The geographical size is about 1,877  $\text{km}^2$  in Kagawa, 254  $\text{km}^2$  in Sacramento, 6418  $\text{km}^2$  in Perth. The population density is about 515 people/ $\text{km}^2$  in Kagawa, 191 people/ $\text{km}^2$  in Sacramento, 318 people/ $\text{km}^2$  in

Perth. The latitude is about north 34 degree in Kagawa, north 38 degrees in Sacramento, south 32 degree in Perth. On the other hand; these three areas have similarities related to climate. The monthly mean precipitation was about 2.6 inch in Kagawa at the time drought arose in 1994; this was similar to the current precipitation in Sacramento (about 2.0 inch), and Perth (about 2.3 inch) 2016. The annual average temperature is about 17.0 °C in Kagawa, 16.1 °C in Sacramento, 18.8 °C in Perth.

In our interview with Mr. Tetsuo Kondo, he mentioned that HDI (Human Development Index) is one of the good index to find countries that are comparable, as it not only measures economic growth, but also welfare, education, and income levels of the countries' inhabitants. The HDI of these areas' country is about 0.903 in Kagawa, 0.920 in Sacramento, 0.939 in Australia (2015). In addition, these areas produce similar crops, such as olives. There are similar type of conflict in Kagawa, Sacramento, and Perth. In all three places, while citizens have a desire to preserve water for their daily lives, official institutions such as government and water parks have tried to dominate the water resource. Thus, we conclude that although there are differences in terms of the scale of population, geographical size, and latitude, the climate condition--which is an essential element for climate change problem--and social conditions are sufficiently similar to make comparisons. We hope that by researching on the solution of drought in Kagawa, Japan, we can discover new approaches to solve water issues in Sacramento and Perth.

### **Methodology**

Interviews on water issues and climate change via email were conducted to several experts in order to find the answers to our research questions since the beginning of November. Mr. Junji Hashimoto was asked about important points on how to convey the importance of water issues to high school students. The second interviewee was Ms. Kanako

Tanaka, and answers about feasible technologies to mitigate greenhouse gases in short time were gotten from her. To inquire adaptation to drought in California and Perth, Mr. Tetsuo Kondo was the third interviewee. In addition, Mr. Seigo Nasu was interviewed about the conflict over water resources between Kagawa and Tokushima prefecture in Japan. Mr. Glen MacDonald was asked for ideas on possible action plans that high school students can undertake to resolve conflicts over water resources. To learn more about the action taken in the Soka University of America, Dr. Archibald E. Asawa was interviewed as well, in order to gain ideas that are feasible for adaptation to high schools. These interviews were conducted in Japanese and English, and the questions were listed in Appendix. We also interviewed other experts of climate change, but we were not able to get replies from them. In addition to the interviews, we also did a case study to compare Kagawa, Perth, and Sacramento to see if there are solutions in Kagawa that can be applied.

### **Case study of Sacramento**

First, we shall examine the water issues in Sacramento. In California, even though serious droughts due to climate change have been caused, the state is exporting a lot of virtual water to Japan. Since the mid-1980s, California has been supplying Japan hay to feed cattle. Davis (2008) said that California exported between 617000 and 765000 tons of hay, and most of it was shipped to Japan. A minimum 45000 acre-feet of water was required to produce the exported hay. United States Drought Monitor (2014) observed that drought in California is at the worst level in 2014. On the other hand, there is a flood problem. On January 3 and 4 in 2017, extreme flooding has occurred due to heavy rain. This heavy rainfall is supposed to mitigate water scarcity. In fact, this flood is related to drought. Excessive groundwater had been pumped due to water shortage caused by drought in California but excessive groundwater pumping caused subsidence which increased the propensity for flooding.

California has had cycles of drought and flood for a long time and climate change has intensified this cycle.

The damage of drought is divided into two types: long term effect and short term effect. As a short term effect, declines in surface water flows due to drought can be detrimental to water supplies for agriculture, cities, hydropower production, and rivers. The rivers in California function as routes of some ships and famous sightseeing sites. As a long term effect, ground subsidence is caused by excessive pumping ground-water. As a result, infrastructure is damaged and the probability of occurring flood increases. Moreover, the number of wildfire incidents increases in areas where the weather tends to be dry, hot, and windy. In addition, fresh groundwater cannot be gotten because saltwater is mixed with fresh water. While fresh water is in shallow underground, deep groundwater is not fresh water, it is saline. Under natural condition, freshwater and saltwater are divided, but pumping can cause saltwater to migrate inland and upward, resulting in them becoming mixed.

Also, from such effects of drought, conflicts over water sources arise. The local farmers had long struggled with a lack of water for agriculture because of the drought caused by climate change. In order to meet the demand for water, according to Kathleen Miles and Carolyn Lochhead (2014), the governor, Mr. John Andrew Boehner, introduced a new bill in 2009 to improve agricultural production, in view of the recent decreases in agricultural output. The bill allows the government to pump water from the delta for agricultural use. However, this new bill was not passed because some conflicts over water resources occurred between farmers who need water to grow crops and fishermen who need to save the fish habitat in the delta. Also, the environmentalist was against the bill, because of the potential impact on the environment. As an alternative solution, Mr. Andrew restricted the available time for the citizens to water grass in Sacramento and Folsom. In 2016, the amount of water consumption

in Sacramento area was cut down by 22% compared to the same month in 2013, and this scheme to save water has continued to this day.

### **Case study of conflict in Perth**

Next, we shall examine Australia which has water problems too. The rainfall for the area around Tambellup where is located in Western Australia has declined by 125ml over the past fifty years. Department of the Environment and Energy of the Australian government (2009) said the reduced amount of rainwater in recent years along with drought have made government and businesses focus on water security. Australia's Climate Council (2015) estimates that the flow of water from rain in Perth's dams has slumped by 80% since the 1970s. The government of Australia forecasted that the rainfall will drop by up to 40% by the end of the century. As a result, land that can be used to produce crops is being lost each year. This situation creates a negative impact on Australia because Australia cannot export food to the world without productive land. Moreover, Australia is a key food-exporting country in the world and Australia's contribution to international trade in wheat, meat and dairy products is substantial and could affect global food prices. Therefore, we think Australia is as area where water management is heavily influenced by climate change.

Due to the water shortage caused by climate change, tension between citizens and public institutions over water usage existed as a matter of course. Since the population is increasing and the seriousness of drought is getting worse, the level of water in dams is currently dropping, and the amount of water is not enough to meet people's demands. As a result, citizens are becoming sensitive toward how water is used by government and firms. In Australia, although people in Perth are forced to reduce the amount of water that they can use, Adventure World amusement park, which opened in 1982, uses lots of water. In Perth, people are well aware of the need to save water. Thus, citizens pay attention to action taken by the parks. As a result, conflict between citizens and the amusement park was caused.

As a solution, recycled water is being pumped into the underground aquifers that provide drinking water against climate change by local government at June 12 in 2017. It is said that the aquifer also provided a “very large, very cheap storage tank,” which allowed the Water Corporation (an organization which supplies water to many houses, businesses and especially farms) to replenish groundwater at a steady rate and only withdraw water when it is necessary.

## Case study in Kagawa

In Kagawa, droughts have arisen since ancient times because of topographic conditions. Rivers in Kagawa are short and have steep slopes. Hence, rainwater pours into the river too quickly and little water is saved even if it rains. Consequently, people in Kagawa cannot rely on the river to save water for daily use. In addition, the amount of precipitation is decreasing and the range of fluctuation of precipitation is getting larger recently because of climate change. As the graph below shows, while the standard variation of rainfall during 1900 to 1906 in Takamatsu, which is a city in Kagawa, is 167ml, the amount of rainfall was increased by 113ml during 1996 to 2005. As a result, the amount of dam water for human activity is not stable. Currently, Kagawa is attempting to decrease the effects of climate change by routinely checking the Hozan Lake, which plays a role as a reservoir connected to Kagawa artificial ditch.

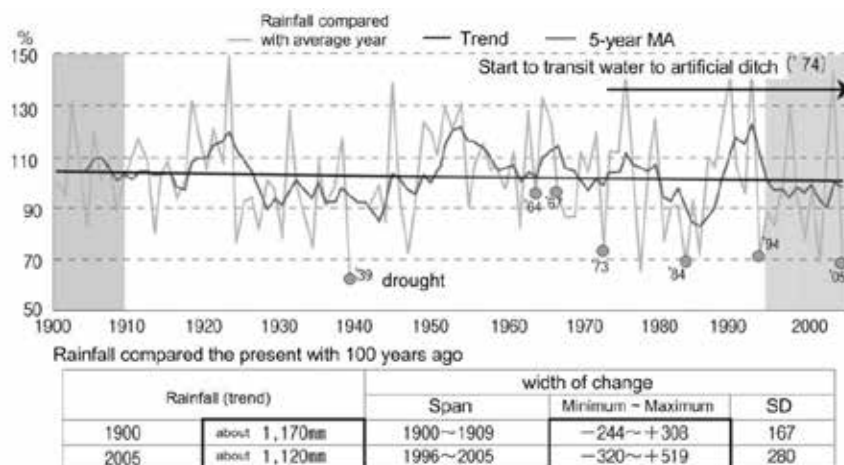


Figure: Change tency of Rainfall in Takamatsu

In order to ensure the lives of people in Kagawa are not disrupted, Kagawa artificial ditch management, which is a part of Kagawa-Yousui land improvement committee, provides water from Yoshino-river with throughout Shikoku-region since 1974. Thanks to this facility, though effects of climate change on Kagawa are beginning to intensify, people in Kagawa did not suffer from serious water scarcity problems.

In Kagawa, as you can see from the figure above, there was a drought which is also known as “Hei roku-Kassui” (平六渇水 which translates to The Drought of 1994). This water scarcity is caused by one of Kagawa’s biggest droughts in 20th century. At that time, there are few public taps available for domestic use in urban areas. To make up for the lack of water for daily use, farmers made much efforts to save water for agriculture and distributed some water to domestic use of water to help the citizens. From this example, it is clear that cooperation between different parties is essential for people to live peacefully, and visible cooperation successfully avoids conflict from happening.

In order to find out more about the situation of the tension over water demand, we conducted interview to Mr. Nasu from the Society for the Study of Water in Shikoku region in Japan, since we could not get the credible information on the Internet. According to him, there is no tension over water rights, although he believes there may be a need for citizens to rethink water rights of Kagawa and the areas around Kagawa.

### **Results**

As mentioned earlier, these three areas have similar conflicts over water. In this section, we would like to describe and compare in detail the relationship of the parties in conflict with each other. First, the conflicts which happened in Sacramento and Perth occurred between two communities (farmers and fishermen in Sacramento and citizens and amusement park in Perth) over the use of water because of droughts caused by climate

change. Also, although these conflicts do not involve violence, there has been significant tension between the parties.

Although Kagawa had the same situation such as California and Perth, people in Kagawa managed to prevent tension from escalating into open conflict. As mentioned above, one of the most serious droughts occurred in Kagawa in 1994. This drought caused the decline of tap water. To solve this problem, farmers in Kagawa offered some of the agricultural water to citizens, following traditions handed down by elderly people. At that time, the amount of water taken from Kagawa's artificial ditch was restricted to 40%. Under such a situation, the head office addressing the drought in Kagawa requested farmers to provide citizens with water. Despite the drought's impact on their farms, they agreed to it and decreased the amount of water they took from the artificial ditch, thus allowing citizens who were short of water to live by providing water in waterworks. As a result, conflict did not occur.

Dr. Lee, who is a researcher on peace-building issues (2017), said that "Problems offer opportunities for people to collaborate with each other." Although Sacramento and Perth do not have such traditions, similar modes of "collaboration" can be promoted through using Water Monitoring Systems (WMS). This system enables people to save water by encouraging them to collaborate with each other. As these three areas have similarities in their climate and also have the same type of conflict, we would like to propose that California and Perth adopt a similar solution that was used in Kagawa though using WMS. The following describes how this can be done in more detail.

Based on the answers from experts, we analyzed their comments to seek answers to our research questions. First, Mr. Kondo said people who tackle climate change need to know the differences in lifestyle and consider measures suitable for each place. Second, Mr. Hashimoto said that people should think about the water issues by starting from places that

they are familiar with and identify problems that they can solve by themselves. Third, Mrs. Tanaka said that the most important thing is to have an awareness of climate change, and know the situation well. Lastly, Mr. Asawa said that the principle of fostering leaders for the creative coexistence of nature and humanity inspired him. From these response, we concluded that the most important thing when people address the issue of climate change is having the consciousness as a member of the world. In addition, if more information is provided to people, it will prompt people to take action towards solving water problem and climate change.

### **Discussion**

Based on the solution in Kagawa, we suggest one way of cooperation to resolve conflicts in Perth and Sacramento. Among many adaptations, two types of adaptation can be applied to reduce the effects of climate change in Perth and Sacramento.

First, we propose using a Water Monitoring System (WMS) to facilitate collaboration in the community in Perth and Sacramento. This system has two major functions. Firstly, WMS can visualize how much water is used and for what purpose. This will encourage users to notice any water wastage. The second one is that WMS can suggest how much water should be used for different purposes. For example, this system provides basic information on household water usage and the best time of day with people to undertake water-intensive activities. This program will help local governments AND citizens to decide whether to install water meters, water-conserving appliances, and rainwater harvesting tanks. As a result, water can be distributed to people effectively and they can raise awareness toward utilizing water effectively. By following instructions from WMS, people in Sacramento and Perth can easily contribute to water saving. These two functions in WMS will allow the citizens to be conscious of water usage and water savings effectively.

In addition, WMS is divided into 3 levels: Community Water Management System (CWMS), Building Water Management System (BWMS) and House Water Management System (HWMS). BWMS and HWMS provide instructions for effective water usage in individual houses and individual building respectively. CWMS, which is similar to BWMS and HWMS, has an additional function due to its larger scale: it facilitates cooperation among citizens, farmers, government, and businesses. With CWMS, both individuals and large organizations can monitor how much water is used. This function helps visualize how collaboration is done within the community regarding water saving. Thus, CWMS can encourage not only citizens, but also local government and businesses to cooperate with each other when there is a water shortage. Unlike Kagawa, there is no tradition of collaboration in Sacramento and Perth when drought is occurring. Therefore, the author concluded that sharing a sense of collaboration within a community is important not only to save water, but also prevent conflicts in the community. By visualizing water usage, CWMS successfully helps build a sense of collaboration within the community.

### **Limitations**

In this year, we have researched and looked for solutions to conflict over water usage caused by climate change from the peace perspective. However, while working on the research, we faced considerable limitations to our research. First, “peace” and “peacebuilding” is a concept that is usually associated with violent war; however, we chose to focus on non-violent conflicts only at the community level. As mentioned earlier, violent conflicts often include political and economic issues, and students do not have enough funds and authority to solve violent conflicts. Therefore, we thought it is difficult to tackle the issue of violent conflicts as a high school student, and this made it difficult to find relevant information that fits our research. Second, although our research is a case study on Perth,

Sacramento and Kagawa, we could not go to these three places to understand the lifestyles and actual situation of conflict in each place. Therefore, it was difficult to ascertain if our recommendations to adopt Kagawa's method of conflict resolution is suitable for adaptation in each place. Despite these limitations, which might affect the persuasiveness of our research, we believe that this is a good start and further studies can be done.

### **Conclusion**

Climate change is very complicated and it takes a long time and requires tremendous efforts to solve. However, if people begin to think and take actions toward the common goal: people can find opportunities to solve problems with other countries to save our earth from climate change. As demonstrated in Kagawa, when people cooperate to save water, which is a common precious resource for all human beings, they can overcome water scarcity problems and live together without conflict in a sustainable society. In order to build solidarity for peace in our world, we have mission to take actions toward climate change from now and here with this proposal.

### Reference

- Alliance for Peacebuilding (2013 Aug 12). Selected Definitions of Peacebuilding. Retrieved from <http://www.allianceforpeacebuilding.org/2013/08/selected-definitions-of-peacebuilding/>
- Burns, M. (2009 Jun 10). Trading 'Virtual' Water. Retrieved from <https://www.google.co.jp/amp/s/psmag.com/.amp/economics/trading-virtual-water-3650>
- California Olive Ranch: Growing Regions. Retrieved from <https://californiaoliveranch.com/olive-oil-101/growing-regions/>
- California Ripe Olives: About the Olive Industry. Retrieved from <http://calolive.org/our-story/about-olive-industry/>
- Californian Office of Public Affairs (2014 June 23). Planting Seeds. Olive cultivation on the rise in drought-parched Central Valley – from the Sacramento Bee. Retrieved from <http://plantingseedsblog.cdfa.ca.gov/wordpress/?p=6416>
- California Water Science Center, U.S. Geological Survey (2016). Drought Impacts. Retrieved from <https://ca.water.usgs.gov/data/drought/drought-impact.html>
- Calla, W. (2017, May 29). Perth Ramps Up Groundwater Replenishment Scheme To Drought-Proof City. *The Guardian*. Retrieved from <https://www.theguardian.com/australia-news/2017/may/29/perth-ramps-up-groundwater-replenishment-scheme-to-drought-proof-city>
- Carolyn, L. (2014 Jan 22). Boehner Throws Weight Behind GOP's California Drought Bill. *San Francisco Chronicle*. Retrieved from <http://blog.sfgate.com/politics/2014/01/22/central-valley-republicans-drafting-drought-bill/>
- Consul-General of Japan in San Francisco (2017). Agriculture Overall Condition In California. Retrieved from [http://www.sf.us.emb-japan.go.jp/itpr\\_ja/m08\\_06\\_02.html](http://www.sf.us.emb-japan.go.jp/itpr_ja/m08_06_02.html)
- Ed J. (2016 Jul 21). Capital Public Radio, Drought Persists And So Does Water Conservation In Sacramento. Retrieved from <http://www.cpradio.org/articles/2016/07/21/drought-persists-and-so-does-water-conservation-in-sacramento/>
- Environmental Protection Authority (2017). Perth Groundwater Replenishment Scheme Stage 2. Retrieved from <http://www.epa.wa.gov.au/proposals/perth-groundwater-replenishment-scheme-stage-2>
- Guildford Garden Centre (2017). Olive “Kalamata”. Retrieved from <https://guildfordgardencentre.com.au/product/olive-kalamata/>
- Hunger Free World (2000). The Great Quantities Of Water Imported As Food, Virtual Water Input By Japan. Retrieved from [http://www.hungerfree.net/english/special/26\\_1.html](http://www.hungerfree.net/english/special/26_1.html)

- Jay, L. (2016). Sacramento - Recent Annual Temperatures And Rainfall. Retrieved from <https://www.currentresults.com/Yearly-Weather/USA/CA/Sacramento/recent-annual-sacramento-temperature-precipitation.php>
- Jonas, M. (2015). Why Is Water So Important to Life on Earth? *Livingstrong.com*. Retrieved from <http://www.livestrong.com/article/134084-why-is-water-so-important-life-earth/>
- Kagawa Prefectural Government (2015). 香川の水に関する疑問にお答えします(その1) . Retrieved from [http://www.pref.kagawa.lg.jp/content/dir7/dir7\\_8/dir7\\_8\\_2/f73sdo151214152351.shtml](http://www.pref.kagawa.lg.jp/content/dir7/dir7_8/dir7_8_2/f73sdo151214152351.shtml)
- Kagawa Prefectural Government (2017). Agriculture, Farming Village, and Maintenance of Kagawa: About Kagawa Artificial Ditch. Retrieved from <http://www.pref.kagawa.jp/tochikai/water/about.html>
- Kat L., USA Today. 5 Largest Dams in California. Retrieved from <http://traveltips.usatoday.com/5-largest-dams-california-103883.html>
- Kathleen, M. (2014, Jan 1). California May Have Hit Its Driest Point In 500 Years, And The Effects Are Frightening. *Huffington Post*. Retrieved from [http://www.huffingtonpost.com/14/01/30/california-drought-effects-500-years\\_n\\_4647529.html](http://www.huffingtonpost.com/14/01/30/california-drought-effects-500-years_n_4647529.html)
- Kazuko, T. & Hiroshi, T. (2017) Mitsukan Water Culture Center Secretariat. ため池文化《香川》融通の智慧 平成6年 大干ばつ 何が都市を救ったか. Retrieved from <http://www.mizu.gr.jp/kikanshi/no01/01.html>
- Kenji, F. (2014). Water scarcity spreading all over the world - Is Japan's water really safe? *Sustainable Japan Research Center*. Retrieved from <https://sustainablejapan.jp/2014/07/10/water-and-japan/11050>
- Kiyoichi S. (2017), Kagawa Prefectural Government. Kagawa's Nature. Retrieved from <http://www.pref.kagawa.lg.jp/kankyo/shizen/monogatari/shizen/index.htm>
- Kyle, K. & Thomas, S. (2017 Apr 7). 275 California Drought Maps Show Deep Drought And Recovery. *Los Angeles Times*. Retrieved from <http://www.latimes.com/local/lanow/la-me-g-california-drought-map-htmlstory.html>
- Lin, R. G. & St. John, P. (2017 Apr 10). From Extreme Drought To Record Rain: Why California's Drought-To-Deluge Cycle Is Getting Worse. *Los Angeles Times*. Retrieved from <https://www.google.co.jp/amp/www.latimes.com/local/lanow/la-me-record-rains-20170410-story,amp.html>
- Masahiro M. (2008). Climate Change And Vulnerability Of Water Resource. Retrieved from [https://www.jstage.jst.go.jp/article/jwei/21/0/21\\_0\\_89/\\_pdf](https://www.jstage.jst.go.jp/article/jwei/21/0/21_0_89/_pdf)
- Mediterranean Climate. Retrieved from <http://www.encyclopedia.com/earth-and-environment/ecology-and-environmentalism/environmental-studies/mediterranean-climate>

## PEACE-BUILDING AND CLIMATE CHANGE

- Miles, K. (2014). Water Once In 500 Years: Current Situation In California. *Huffington Post*. Retrieved from <http://m.huffpost.com/jp/entry/4728010?m=true>
- Milman, O. (2015 Oct 6). Perth's Water Worries: How One Of The Driest Cities Is Fighting Climate Change. *The Guardian*. Retrieved from <https://www.theguardian.com/sustainable-business/2015/oct/06/perth-western-australia-drought-climate-change-water>
- Ministry of Land, Infrastructure, Transport and Tourism Japan (2017). Present Condition Of The World And Japan About Water Resources. Retrieved from <http://www.mlit.go.jp/common/001020285.pdf>
- Ministry of Land, Infrastructure, Transport and Tourism Japan (2017). 水資源局水資源部. World Water Resources. Retrieved from [http://www.mlit.go.jp/mizukokudo/mizsei/mizukokudo\\_mizsei\\_tk2\\_000020.html](http://www.mlit.go.jp/mizukokudo/mizsei/mizukokudo_mizsei_tk2_000020.html)
- NASA, (2017), Solutions to Global Climate Change, Retrieved from <https://climate.nasa.gov/solutions/adaptation-mitigation/>
- Perth Now (2017 Nov 26). Adventure World Celebrates 35 Years With Launch Of Goliath. Retrieved from <https://www.perthnow.com.au/news/wa/adventure-world-celebrates-35-years-with-launch-of-goliath-ng-b88672028z>
- Taikan, O. (2017 Feb 13). Water, Food and Sustainable Development. United Nations University Women's Association. Retrieved from <http://unuwa.org/water-food-and-sustainable-development/>
- The Free Dictionary (2017). Virtual Water. Retrieved from <http://medical-dictionary.thefreedictionary.com/Virtual+Water>
- Tranter, K. (2015). Global Water Woes: Australia's Looming Water Crisis. *Independent Australia*. Retrieved from <https://independentaustralia.net/environment/environment-display/global-water-woes-australias-looming-water-crisis-,7534>
- United Nations Peacebuilding Fund (2017). What is Peacebuilding? Retrieved from <http://www.unpbf.org/application-guidelines/what-is-peacebuilding/>
- United States Geological Survey (2016). Groundwater depletion. Retrieved from <https://water.usgs.gov/edu/gwdepletion.html>
- United States Geological Survey (2016). Drought Impacts. Retrieved from <https://ca.water.usgs.gov/data/drought/drought-impact.html>
- United States Geological Survey (2017). Water. Retrieved from [https://www.usgs.gov/science/mission-areas/water?qt-mission\\_areas\\_l2\\_landing\\_page\\_ta=0#qt-mission\\_areas\\_l2\\_landing\\_page\\_ta](https://www.usgs.gov/science/mission-areas/water?qt-mission_areas_l2_landing_page_ta=0#qt-mission_areas_l2_landing_page_ta)
- United States Geological Survey (2017). Land Subsidence in California. Retrieved from [https://ca.water.usgs.gov/land\\_subsidence/](https://ca.water.usgs.gov/land_subsidence/)

## PEACE-BUILDING AND CLIMATE CHANGE

United States Environmental Protection Agency (2017). Adaptation Action for Water Utilities. Retrieved from <https://www.epa.gov/arc-x/adaptation-actions-water-utilities>

Water Corporation Australia (2017). Rainfall. Retrieved from <https://www.watercorporation.com.au/water-supply/rainfall-and-dams/rainfall>

Water Corporation Australia (2017). Visiting Our Dams. Retrieved from <https://www.watercorporation.com.au/water-supply/our-water-sources/dams/visiting-our-dams>

Will, S. (2015). Climate Council. Thirsty Country: Climate Change And Drought In Australia. Retrieved from <http://www.climatecouncil.org.au/uploads/37d4a0d2a372656332d75d0163d9e8b8.pdf>

Appendix A

Interview questions to Mr. Tetsuro Kondo

Q1: チャドについて私たちが調べたところによりますと、雨量に変動があり、農業が盛んな地域だとありました。したがって、私たちが調べておりますカリフォルニアやパースも大きな雨量の変動があり、農業が盛んな中で水問題があるという類似点があるように思えたため、チャドで実施されていた気候変動の適応策が、カリフォルニアやパースでも適応できるのではないかと推測しました。チャドで行われている適応策について調べたところ、経済を促進する農業、漁業、水の確保、医療などで、包括的で持続可能な策が講じられていると述べておりました。そのような包括的で持続可能な適応策を行う上で重要となることは何でしょうか。

それらの策を国レベルとコミュニティレベルで実行する場合の利点、不都合な点は何ですか。

Q2: UNDP はその地域に合った解決策を考えていると伺いました。私たちのグループも、その地域のコミュニティレベルで実行可能なその地域に合った気候変動、水問題に適応するための対策を探求しています。その上で、近藤さんのチャドでの活動で実際に大切だと感じたステップ、またその際に、注意すべきことや大切なことは何でしょうか。

Appendix B

Interview questions to Mr. Jyunji Hashimoto

Q1: 橋本様は高校生に世界の日本の水問題の重要性や深刻さを伝えていらっしゃるかと聞きしました。水問題の解決は高校生にとりまして、身近なようで身近ではないと感じております。日本の高校生に水問題を身近に感じてもらうため、どのように水問題の理解の重要性を高校生に伝えていらっしゃいますか。また、日本の高校生に伝える上で、どのような姿勢で、またどのようなことに留意して講義されていらっしゃいますでしょうか。

Q2: 専門家の立場から、若い世代が水問題に対してどのような意識を持つことを求めているのかを伺いたいと存じます。

Appendix C

Interview questions to Mrs. Kanako Tanaka

Q1: 私たちは現在、コミュニティレベルで実行可能な地球温暖化の緩和策、もしくは専門家の方々が行っているようなバイオマス発電や CO2 自体を吸収するような技術でコミュニティレベルでも適応可能な技術を探求しています。低減策を草の根レベルでも実行し、浸透させるために、地域・個人レベルで温室効果ガスを削減するための実用的な技術をなにかご存じでしょうか。もしご存じでしたら、ご教授いただければと思います。

Q2: 気候変動を緩和するために、私たちは一人一人の意識と行動が大切だと考えているのですが、緩和策において地域・個人レベルで実行しなければいけない最も重要なステップは何であるとお考えになりますか。

Appendix D

Interview questions to Dr. Archibald E.Asawa

Q1: Where do you gain your inspiration for your activities?

Q2: How do you gain support or cooperation from professors and other students?

Q3: Are there off-campus activities that Sustainable SOKA is currently involved in? If so, what are some of the eco-friendly activities done with the surrounding community?

Mr. Seigo Nasu

Q1: 早明浦ダムは四国地方の各県で共有で使用されていると理解しているのですが、早明浦ダムの利権などをめぐる対立などは存在したのでしょうか？インターネットによる記事では、信憑性に欠けていたため、しっかりとした証明として、お言葉を頂きたいと思い質問させていただきます。

Q2: 具体的にいつごろから対立がみられているのでしょうか？早明浦ダムの建設前の1973年に起こった香川県の干ばつが原因でしょうか？国土交通省と管理者ホームページで建設完成年に1年ほど誤差があるのですが(国土交通省,1978年完成,管理者ホームページ,1975年完成)、正しくは何年なのでしょう？

Q3: 最近では香川県や徳島県の干ばつが起りやすい時期の水不足の被害状態は改善されてきているのでしょうか？もし改善されているのなら、具体的にどのようにして改善されたのでしょうか？

Q4: 対立とは関係ありませんが香川県は特に干ばつの頻度が多い地域であったと思われます。調べていくなかで、稲作において使用できる水の量が例年よりも少ない場合、水田を畑のようにして水を有効に使うという、香川県水田農業振興協議会の取り組みや、香川県環境森林部環境政策課が作成された「家庭のCO<sub>2</sub>削減ハンドブック」などを拝見しました。様々対策が練られていると思いますが、地域の住民の方々は、水田を畑のように使うことや、ハンドブックの作成以外で、どのように対策をして干ばつを乗り越えてこられたのかご存知でしょうか？もしご存知でしたらご教授下さい。

ラーニングクラスター2017 年  
ハイスクール平和提言

**Sustainable Tourism to Combat Climate Change**  
気候変動を打開するための持続可能な観光のあり方

開発グループ

43 期 小西彩華、酒井亮、細見桃花、  
44 期 三原亜紀子

「観光」は、旅行時の移動による温室効果ガスの排出などが気候変動を悪化させる原因であると同時に、貴重な観光資源やインフラが気候変動の影響によって大きくダメージを受けています。今こそ持続可能な未来のために私たちの観光の方法を環境に優しいものに変える時代であり、それは私たち高校生という若い世代の人々が率先して行動していくことが大切であると考えました。その上で私たちは2つのリサーチクエストを立て、持続可能な観光を確立させるにはどのような方法を取っていくべきかという点について研究してきました。

1. 気候変動の影響を緩和するために観光業はどのような対策をしていくべきか？
2. それぞれの地域で観光を通して持続可能な開発を進めるために日本の高校生はどのように行動できるか？

このような疑問を解決するため、大きくわけて2つの調査を行いました。まず、関西創価高校の位置する交野市の市役所の方に、環境と観光の側面からお話を伺いました。実際に交野市でも、重要な観光資源である農作物の生育が近年の気候変動によって被害を受けているという報告があるなど、気候変動と観光の相互関係が伺えました。また、自然を生かした観光を進めており、広報に特化した企業と提携して様々なイベントを成功させている一方、鉄道会社や地元警察との協力体制の不足により、環境に優しい交通手段を通じた観光の促進が滞っていることなどを知りました。関西創価高校の2、3年への意識調査では、約8割の生徒が環境保全と観光の両立を目指す「エコツーリズム」について知らず、また、知っている生徒の中でもそれに興味を持っていると答えた生徒は半数を切っていることがわかりました。このことから、私たちは次の3つのことを提案します。まず観光業における各組織の協力体制不足を解消し、観光業から気候変動への影響を緩和するために①定期的に地域社会で観光に関する包括的な会議を開くことを提案します。次に人々の気候変動と観光の関連性に関する意識をあげるため、高校生が主体となって出来る行動として、②ビデオやポスターを作成しオープンキャンパスで来校者へ紹介すること、③シティーウィークを開催することを提案します。この提言の作成にあたり、より一般的な視点で提案を行うため、学校内の意識調査だけでなく一般の方の現状も考慮すべきだったと感じました。また意識調査で本当に回答者が正しい知識を持っているか否か考えることなく行ったため、正確性に欠けている可能性があります。加えて、未だ人々の意識をあげることが必ず行動につながるの確証を得られていないのでその点において更なる調査が必要だったと思います。私たちは行動を起こすことによってこそ世界に変革をもたらすことが可能になると考えています。この提言を読まれた方が少しでもこの問題を改善しようと身近なことから行動を開始されることを願います。

## **Sustainable Tourism to Combat Climate Change**

In today's society, climate change is one of the most highlighted issues because it exacerbates current problems. For instance, climate change leads to conflicts over water and food resources. Also, climate change affects all people wherever they live in. This means that solving this issue would give good effect to everyone. Actually, according to the World Bank, if we would be able to succeed to contribute to improving this issue, the countries and communities would save about 100 billion dollars every year. (The World Bank, 2016) In other words, there will be some big advantages as the results of improving the situation of climate change. Based on this, in our research, we would like to know and find the way to reduce the impact of the climate change.

## **Literature Review**

### **Sustainable Development Goals (SDGs)**

Number 13 of SDGs or Climate Action is related to our research topic. The goal of this is to take urgent action to tackle climate change and its impacts. The reason why it matters is that climate change gives damages to people and our planet. Especially, the poor, vulnerable and marginalized groups are most affected by climate change. Taking actions towards solving climate change leads more jobs, prosperity, and better lives for all people. People can prevent rising temperature by transforming the resource of energy from current gases to more eco-friendly resource. Also, people need to anticipate, adapt, and become resilient to the current and future impacts of climate change. Now, the world takes the significant first step by adopting Paris agreement through the Climate Action Agenda. The 2014 Climate Summit in New York brought governments, businesses, and civil society together to embark on new initiatives. (UN, Why it Matters Climate Action, n.d.)

### **Definition of Climate Change**

According to the Australian Academy of Science, “climate change is the change in the pattern of weather, and related changes in oceans, land surfaces and ice sheets, occurring over time scales of decades or longer.” (Australian Academy of Science, n.d.) There are mainly two types of factors that cause climate change, which are the natural factors and the artificial factors. The instances of natural factors are changing solar activities and increasing specific microparticles by the volcanic eruption. The artificial factors which are human-related are such as the fossil fuel emissions produced by human activities and deforestation. (Japan Meteorological Agency, Ministry of the Environment and MEXT, March, 2013)

### **Definition of Sustainable Development**

According to the report of United Nations named "Our Common Future", sustainable development is the “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (International Institution for Sustainable Development, n.d.) This is based on the idea that environment and development can be reconciled. Thus, it is important to proceed the development considering the environment conservation within reasonable bounds.

### **Categories of Development**

According to Japan International Cooperation Agency (JICA), there are many areas of living conditions that need proper attention. These areas have been affected by climate change. The areas are, among others, sanitation, industry, agriculture, and tourism. Sustainable principles refer to the environmental, economic, and socio-cultural aspects of tourism development, and a sustainable balance must be built among these three dimensions to guarantee their long-term sustainability. Therefore, tourism should make optimal decision on environmental resources that constitutes a key element in tourism development, maintaining essential ecological processes, and helping to conserve natural heritage and biodiversity. Also,

they should respect the socio-natural authenticity of host communities and ensure viable and long-term economic operations. (UNWTO Sustainable Development of Tourism)

### **How tourism contributes to Sustainable Development**

Tourism is in a special position in the contribution to make sustainable development because it is the major economic source of many countries. (UNEP, n.d.) According to 2016 Economic Impact Annual Update Summary, nearly 10% of global GDP in 2015 was from the tourism industry. Also, tourism is an activity which involves relationships among visitors, the industry, the environment, and local community. For instance, tourism has interaction such as selling products and keeping tourism sites. (UNEP, n.d.) In addition, this year is the International Year of Sustainable Tourism for Development decided by the U.N. conference. (UNWTO, n.d.) Thus, tourism is one key element to promote economy and sustainable development.

### **Effects of Climate Change on Tourism**

**Heat wave.** According to the World Meteorology Organization, the heat wave is the condition such as five or more consecutive days in which the average daily maximum temperature is exceeded by at least five degrees. (The wall street journal, 2015) Actually, South Asia, especially India has been affected by heat wave a lot. Mainichi news reported that over 440 people died because of the heat wave until last month. (Mainichi news, 2016) One of the reasons is said that the lack of knowledge. Also, Nature Climate Change reports that even if we can reduce the amount of greenhouse gas emission now, 50 percent of people would be forced to spend at least 20 days under the severe heat waves. (Nikkei National Geographic Japan, July 1, 2017) In addition, heat wave causes many environmental issues. It causes drought and forest fire which give damage to agricultural development. It also causes melting snow, and winter sports industry, which is the significant tourism resource of some region, like skiing, is being

damaged. In this way, not only from the perspective of direct threats but also the damage on related problems, people need to combat this situation urgently.

**Rising sea temperature.** Rising sea temperature is one of the severe effects of climate change on tourism industries. Storms often happen by absorbing heat which is fuel for them from the ocean. However, these are made powerful because of recent rising marine temperature. These stronger storms destroy infrastructures and also tourism resources in Caribbean countries. (McGill University, November, 2016) Also, beautiful coral reefs in Okinawa prefecture where has many tourist sights are being damaged by the warmer ocean and started to be dead called bleaching. (The Japan Times, January 11, 2017) The coral reef is an indicator of marine lives, so bleaching alerts that the marine ecosystem is in a bad situation in the area. The reason why this rising sea temperature happening is global warming, so the best solution is the dramatically rapid emission of greenhouse gas includes carbon dioxide. (NATIONAL GEOGRAPHIC, April 27, 2010) Therefore, rising sea temperature can be called one of the serious problems caused by climate change and it damages precious resources for tourism.

### **Examples of High School Student Contributing to Sustainable Development**

In Bali, a campaign of “ Bye Bye Plastic Bag ” is achieved by Melati and Isabel, 15 years old and 13 years old. In this campaign, they collected one million signatures at the airport to attempt to get the government of Bali on board. As a result, they collected about ten million signatures and could get a statement of government that Bali would be plastic bag free by 2018. (Melati and Isabel Wijzen at TED talk at 2015 September) Also, “ The Ocean Cleanup Array”, collected garbage in the ocean by garbage patches, is suggested by a boy, 16 years old, Boyan Slat. This system is that it takes only ocean current and solar energy to work. Also, it will collect 7,500,000 tons garbage. (Boyan Slat at TED×□Delft at 2012)

### **Research Questions**

Based on the literature review, we created following research questions:

1. What kinds of approaches are needed for tourism industry to mitigate the effects of climate change?
2. How can Japanese high school students take initiative in their communities to promote sustainable development through tourism?

Climate change brings severe effects on tourism sites. For instance, in tourism places that are focusing on winter business, tourism conductor cannot run their ski programs because of lack of snow caused by global warming. In order to cut this negative chain, tourism itself also should take some actions in order to reduce the impact of climate change on tourism. At this point, travel industry would take a big part of helping to improve this issue. If there are some effective actions that they can take, it would be able to improve the climate change and the damage from the climate change.

Tourism is one of the greatest industries which maintains economics and have to be considered to combat climate change, but it has not been addressed by general people, especially young high school students. Tourism is related to characteristics of the community like nature so much. Thus, if high school students can take an initiative from their communities, they could spread the big wave that promotes sustainable development to the world. Based on the belief that the high school students are the most important generation for better future, in our research, concluding part would contain the creative ways that can be done only by high school students.

### **Methodology**

In order to find the necessary approach of the tourism industry to reduce the effects of climate change and the way for high school students to take initiative in their communities to

promote sustainable development through tourism, one survey and one interview were conducted from late October to November.

In late October, the online survey was conducted in Kansai Soka high school to know the awareness of students in our school and improve it by proposing the solutions eventually. The number of respondents is about two hundred and fifty-five students in total. There were mainly three questions. The survey was conducted for following three reasons. The first reason was to see how many people choose eco-friendly transportation such as trains. The second reason was to see how many people were interested in ecotourism which is defined as responsible travel to natural areas that conserves the environment, sustains the well-being of local people, and involves interpretation and education. The third reason was to examine if current ecotourism industry can attract high school students' attentions or not, this result will help to find a more effective strategy for tourism to stop climate change. Most of the students would answer the choice of car that is regarded as an environmentally unfriendly transportation and they would not know about ecotourism so much.

On November 6th, a direct interview was conducted with staff members of regional development faculty and environmental health faculty of Katano city at the city hall. The interviewee was asked about the situation of tourism and climate change around them in Katano city. This interview was conducted to find the ideal role of the tourism industry to promote sustainable development. This local-roots research results would suggest the practical way to contribute solving an issue in reality. The online survey and the interview were conducted in Japanese, and the questions are listed in Appendix.

## **Results**

The interview and the survey provided insightful answers to the research questions about the improvements of the tourism industry and the things high school students can do against the climate change.

### **Katano City Interview**

Three interviewees answered that they have felt the impact of climate change on their tourism recently. There are many visitors who enjoy visiting nature sight such as waterfall and climbing the mountain in Katano city. However, due to the sudden heavy rainfall which increases recently, nature has been damaged. For example, the trees and soil are not capable of bearing against the sudden heavy rain, whose incidence is boosting and cause fallen tree. This prevents visitors from enjoying nature. Also, the agriculture, which supports the tourism industry of Katano city by such as making local famous products, are being affected a lot as well. Recently, due to the increasing temperature, the amount of crop is decreasing. Lack of these fruits gives an effect on the fruit picking industry, which is one of the popular things that many visitors can experience and enjoy. In the worst case, some farmers give up and retire from engaging agriculture. In addition, some indigenous products which are recognized as a “Katano brand” are affected.

The interviewees said that the eco-tourism, which defined as the “responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education,” according to the International Ecotourism Society, is necessary for them to development because the rich nature attracts visitors and encourage them to live in Katano city eventually.

They also answered that they had several tourism campaigns in Katano that collaborated with a travel agency. For example, Katano Noasobi Daisakusen [an outdoor event for citizens to enjoy nature in Katano], collaborating with T-travel, received a favorable reputation from participants, especially family. T-travel is excel at advertising, and they were able to choose the target and send information to particular generation appropriately.

They also said that their activities did not focus on “eco-tourism” at first, but it came to be “eco-tourism” as a result of their activities which make use of beautiful natures and develop

their town environmentally friendly in Katano city. However, young people such as high school students have not participated in the activities and only elderly people have sustained developments in Katano. They hoped high school students to join local activities which are related to eco-friendly development of tourism industries with thoughts and ideas unique to only high school students.

Interviewees also answered about transportation people use in travel. The interviewees were trying to increase people who use a bicycle. For example, Katano city was thinking to promote Ekirinkun [service to lend bicycle for many people near the station]. However, many problems such as difficult to coordinate with police from the legal perspective and residents and they have to consider about the way to involve tourists who come from far away occurred.

### **School Survey**

There were 255 responds to the online survey we conducted aiming to investigate the awareness regarding the eco-friendly way to travel and the relationship between climate change and tourism.

As for the question one, when respondents travel inside their geographical division that the Ministry of Land, Infrastructure, Transport, and Tourism divide Japan into 10, sixty percent of them answered that they often use car and thirty-two percent of them answered that they often use train. As a minority, two percent of them answered often use Shinkansen, other two percent chose bus and the remaining four percent answered that they often use other transportation.

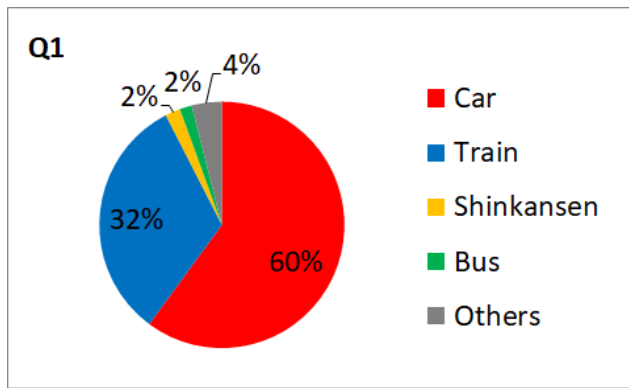


Figure 1. Responses to Question 1.

For the second question, forty-seven percent of respondents answered they use cars to travel outside their geographical division. Twenty-six percent of them answered they use Shinkansen most, and thirteen percent of them use plane. The rest of responders, fourteen percent, answered they use other transportation systems such as bus.

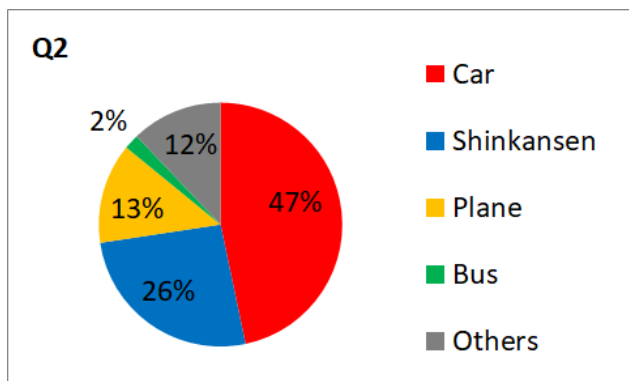


Figure 2. Responses to Question 2.

Regarding the “eco-tourism,” the responses of question three showed that only twenty percent of students know about the “eco-tourism”. Among those who knew the eco-tourism, the extra question three reveals that forty-seven percent were interested in it. In other words, as a whole, about nine percent of students knew the eco-tourism and were interested in it.

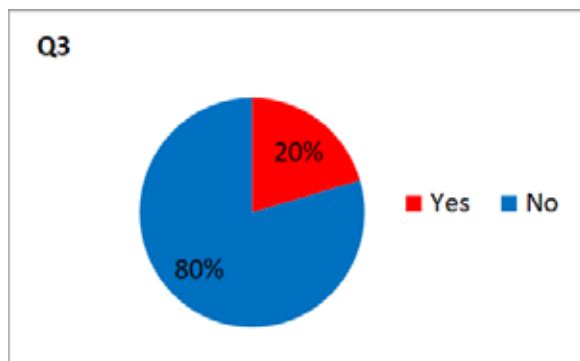


Figure 3. Responses to Question 3.

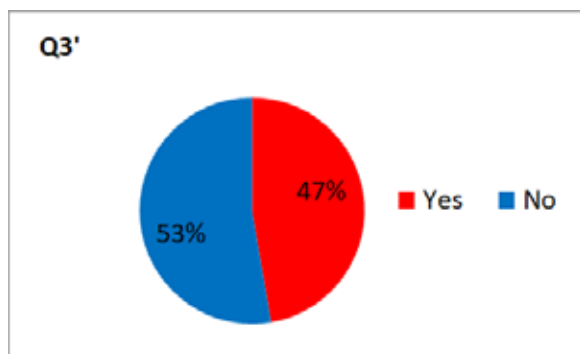


Figure 4. Responses to Question 3.

As for the last question, the fourth, twenty-four of respondents answered they knew a relationship between climate change and tourism and rest of them answered they did not know about that. Sixty-one respondents out of those who answered they knew the relationship showed some examples of what they know about it. Many of them knew effects of climate change on tourism such as heavy rain and acidic rain had caused destroying natural sightseeing places and the season people can enjoy seeing red and yellow leaves had been changed by dramatic change of air temperatures. In the other hand, only small number of people knew causes of climate change from tourism that the gases emit from private cars causes global warming.

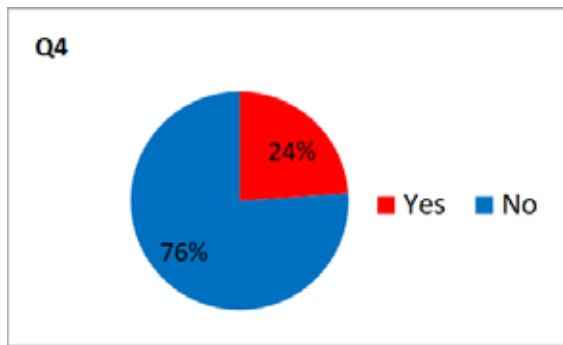


Figure 4. Responses to Question 4.

### Discussion

The literature review and research surveys results suggested the importance of creating a network among society and enhancing the awareness which is capable of stimulating people to take action.

According to the interview with Katano city, interviewees said that problems caused by lack of association with other local organization were triggered. For example, Katano city attempted to make a new road that is only for bicycle users and conduct a tour guide using bicycles for eco-tourism. However, it did not work well because of difficulty of getting permission from the police, company of administration of roads, much expenditure, and so on.

According to school survey, eighty percent of respondents do not know the eco-tourism, and fifty-three percent of those who know are not interested in it. This result implies that many people do not know the action to tackle the impact of climate change, and even worse, people who know are not interested in it so much. Therefore, it is important to raise awareness towards the effect of climate change and motivate people those who have the knowledge to take the actions to reduce the effect of climate change.

### **Proposal**

Based on this research and discussion, two proposals are made to combat climate change on tourism.

First, in order to promote sustainable development in terms of tourism, holding a forum in each local community was proposed. In this forum, representatives of each section which is related to developments of local tourism such as citizens, public offices, police stations and enterprises will be invited. The forum is held periodically and it starts with exchanging opinions among attendants. As a next step, they discuss what kinds of actions they can conduct in their local community, confirm requirements for the actions, and decide a project for sustainable tourism. After finishing the project, it is necessary for the next project to review conducted project. Holding this forum would establish an inclusive cooperation system which can forward a project more smoothly and support sustainable local tourism which can contribute to reducing causes of climate change.

In addition, based on this discussion, we would like to approach the current situation from two aspects. First, we propose utilizing the opportunity of open campus aiming to provide the knowledge about the situation of tourism related to the climate change to people those who do not know such information. Students will learn the problems at first, and create and show short movie and poster to tell how climate change has given the impact on tourism so that we can raise the awareness of visitors including those who have less knowledge. Secondly, in order to stimulate people to take action, we would like to propose high school students to host a city week festival and conduct some campaigns. There are four campaigns we propose. The first one is that, in order to deepen the knowledge about the situation, students can hold workshops inviting some experts who are specialized in tourism and climate change. The second idea is that students can cooperate with local farmers and sell some meals which use local products to visitors in order to convey that those products are being affected by climate

change. The third campaign is the photo contest. During the week, students can call participants to take pictures of the local community and upload them on the SNS with the message towards the preservation of precious nature. Then, they can call for SNS users to vote the best photo they think. Through this activity, students and participants involve other people in thinking the problem. Lastly, we suggest conducting tour led by high school students. Students who learn the history of the nature from local professional guide will conduct it. They can learn and enables visitors to feel the situation for real.

### **Limitations**

First, more research is needed relating to the tourism situation in Katano city. Katano city staffs taught us the another organization named Katano Tourist Association which promotes tourism in the city. However, due to the time limitation, we could not make an opportunity to interview them. As the contributive tourism organization, this association should have be researched more by us.

Secondly, more research is needed on the online survey we did. We initially planned to conduct the survey targeting not only this high school students but the visitors of open campus of this school including people from other school students to adults. However, we could not do so because open campus was canceled. To get more generalize data regarding the awareness towards the climate change and sustainable tourism, more research is needed targeting other people.

In addition, the contents of school survey should have been more considered on transportation choice that answers could select and have been added explanation on tourism before students answered our survey. We had to take into account of the people who utilize several transportation system for once travel such as those who use trains and cars. Also, we might have got inaccurate data. Even if students did have incorrect knowledge on tourism

indeed and answered as if they know correct information, we did not enough research to confirm if their understanding is appropriate.

Besides, the proposals especially the second one should be considered more on their reality. It is still unclear whether raising awareness of participants really contributes to the involvement of other people. Further research is needed to judge if these ways are effective to motivate people to take action for real against climate change. In addition,

### **Conclusion**

The climate change is one of the biggest modern problems which has given many kinds of impacts on people around the world. As our research shows, tourism industry also being affected by climate change. This research assumes that we can reduce the impact of climate change on tourism by creating networks and raising awareness which is capable of stimulating people to take actions. Specifically, holding a forum in the local community will help people to have better opportunity to share the situation with the community and cooperate to reduce the damage of climate change in terms of tourism effectively. Also, to prevail the knowledge utilizing the opportunity of open campus and to hold the city week festival by high school students will promote sustainable tourism for the coming future. We believe that the accumulation of these local actions will lead larger cooperation, and compel reducing the damage of climate change on tourism.

## References

- Boyan Slat at TED×Delf. How the oceans can clean themselves. (October 24, 2012) Retrieved from [https://search.yahoo.co.jp/video/search;\\_ylt=A2RCAw6tjLZZsCkAaxyHrPN7 ; \\_ylu=X3oDMTBiZGdzYWtnBHZ0aWQDanBjMDAz?p=the+ocean+cleanup+ted](https://search.yahoo.co.jp/video/search;_ylt=A2RCAw6tjLZZsCkAaxyHrPN7;_ylu=X3oDMTBiZGdzYWtnBHZ0aWQDanBjMDAz?p=the+ocean+cleanup+ted)
- International Institute for sustainable development. Sustainable Development. (n.d.) Retrieved from <http://www.iisd.org/topic/sustainable-development> Japan Meteorological Agency.
- Ministry of the Environment and Ministry of Education, Culture, Sports, Science, Technology. (March, 2013) Retrieved from [http://www.env.go.jp/earth/ondanka/rep130412/report\\_full.pdf](http://www.env.go.jp/earth/ondanka/rep130412/report_full.pdf)
- JCCCA (Japan Center for Climate Change Actions). The amount of emission of CO<sub>2</sub>. (2014) Retrieved from [http://www.jccca.org/chart/chart03\\_01.html](http://www.jccca.org/chart/chart03_01.html)
- JCCCA (Japan Center for Climate Change Actions). Japanese CO<sub>2</sub> emissions from home life. (2015) Retrieved from [http://www.jccca.org/home\\_section/homesection01.html](http://www.jccca.org/home_section/homesection01.html)
- Mainichi news. Heat wave makes more than 440 people into die in India. (May 25, 2016) Retrieved from <https://mainichi.jp/articles/20160526/k00/00m/030/052000c>
- McGill University. Sustainable tourism and the impact of climate change on the Caribbean. (2016) Retrieved from [https://www.mcgill.ca/iasl/files/iasl/xviii\\_sustainable\\_tourism](https://www.mcgill.ca/iasl/files/iasl/xviii_sustainable_tourism)
- Ministry of Foreign Affairs of Japan. The definition of sustainable development. (2015) Retrieved from <http://www.mofa.go.jp/mofaj/gaiko/kankyo/sogo/kaihatsu.html>
- Ministry of the environment. The global warming prevention plan in 2015. (2016) Retrieved from <http://www.env.go.jp/press/102512.html>
- NATIONAL GEOGRAPHIC. Sea Temperature Rise. (2015) Retrieved from <http://www.nationalgeographic.com/environmentoceans/critical-issues-sea>
- TED. Our campaign to ban plastic bags in Bali Melati and Isabel Wijzen (February 19, 2016) Retrieved from <https://www.youtube.com/watch?v=P8GCjrDWWUM>
- Sustainable Japan. Climate Change. (2016) Retrieved from <https://www.google.co.jp/amp/s/sustainablejapan.jp/2016/12/27/climate-change-3/24>
- The Japan Times. 70% of coral in Okinawa's Sekiseishoko area dead, survey shows. (2017) Retrieved from <https://www.japantimes.co.jp/news/2017/01/11/national/science-health>

The NY times. Paris agreement. (June 1, 2017) Retrieved from  
<https://www.nytimes.com/2017/06/01/climate/trump-paris-climate-agreement.html>

The wall street journal. The reason why Indian heat wave happened. By Suryatapa Bhattacharya. (May 29, 2015) Retrieved from <http://jp.wsj.com/articles/SB11729237550577364>

UNDP (United Nations Development Programme). Climate change. (n.d.) Retrieved from  
<http://www.undp.org/content/undp/en/home/ourwork/environmentandenergy/strategic>

UNEP (United Nations Environmental Programme). Making Tourism More Sustainable. (n.d.) Retrieved from <http://www.unep.fr/shared/publications/pdf>

UNFCCC (United Nations Framework Convention on Climate Change). Paris Agreement. (n.d.) Retrieved from [http://unfccc.int/paris\\_agreement/items/9485.php](http://unfccc.int/paris_agreement/items/9485.php)

United Nations. SDGs 13 (CLIMATE ACTION) UNWTO. (n.d.) Retrieved from  
[http://www.un.org/sustainabledevelopment/wp-content/uploads/2016/08/13\\_Why\\_it\\_](http://www.un.org/sustainabledevelopment/wp-content/uploads/2016/08/13_Why_it_Matters_Climate_Action_letter_size_1p.pdf)

[Matters\\_Climate\\_Action\\_letter\\_size\\_1p.pdf](http://www.un.org/sustainabledevelopment/wp-content/uploads/2016/08/13_Why_it_Matters_Climate_Action_letter_size_1p.pdf) World Bank. Breaking the link between extreme weather and extreme poverty. (November 14, 2016) Retrieved from  
<http://www.worldbank.org/en/news/feature/2016/11/14/breaking-the-link-between-ext>

World Bank. Indicator of emission of CO2. (2013) Retrieved from  
<http://data.worldbank.org/indicator/EN.ATM.CO2E.PC?end=2013&start=1960&view>

WHO (World Health Organization). Sanitation and wastewater. (n.d.) Retrieved from  
[http://www.who.int/water\\_sanitation\\_health/sanitation-waste/en/](http://www.who.int/water_sanitation_health/sanitation-waste/en/)

WTO (World Trade Organization). Sustainable Development of Tourism. (n.d.) Retrieved from <http://sdt.unwto.org/content/about-us-5>

Yahoo news. 53 degrees was recorded at Death Valley. by Sayaka Mori (June 24, 2017) Retrieved from <https://news.yahoo.co.jp/byline/morisayaka/20170624-00072473/>

## Appendix A

### **Interview to Katano City Staff**

1. How do you involve your local community / local high school students in environmental tourism? When you do so, are there any thing you consider?
2. What do you want high school students to do for promoting eco-tourism through volunteer activity?
3. Nowadays, many people use cars for travel. Do you have ideas how people change transportation car to eco-friendly transportation?
4. Have you felt the effect of climate change on tourist sights? If so, how have you tackled with that situation? and are there any thing that high school students can contribute for moderating it?
5. How are you promoting eco-friendly tourism? and why do you think such types of tourism is important?
6. Have you ever conducted some tourism campaigns that collaborated with travel agency in Katano? Was it effective? What do you think is the effective way to advertise the eco-tourism to be recognized by more people?

Appendix B

**Questionnaire to Kansai Soka High School Students**

1. Which transportation system do you use to travel inside your geographical division?
  - a. Choices are car, train, shinkansen, bus, bicycle, plane, and ship
2. Which transportation system do you use to travel outside your geographical division?
  - a. Choices are car, train, shinkansen, bus, bicycle, plane, and ship
3. Do you know what is “ecotourism”?
  - a. If so, are you interested in it?
2. Did you know that there is a relationship between climate change and tourism?
  - a. If so, could you give some example?

ラーニングクラスター2017 年  
ハイスクール平和提言

**Environmental Damage of Dismantling Nuclear Weapons**  
核兵器解体による環境被害

環境グループ

43 期 小西沙織、本川聖奈  
44 期 照喜納明美、田中義幸

2017 年 7 月 7 日、アメリカ合衆国ニューヨーク国連本部にて開催された国連総会において、核兵器禁止条約が採択されました。この歴史的決議を機に核兵器廃絶に向けて国際社会の勢いが増す中、私たちは「核廃絶とは実際に核兵器をどう処理することなのか」との疑問を持ち、インターネットでのリサーチを始めました。基本的な核兵器の仕組みや、核兵器の解体の手順などを調べていく中で、解体に伴う環境被害の存在を知りました。そして、さらなる探求の軸となる 3 つの問いを立てました。

1. 核兵器解体による環境被害とはどのようなものか
2. 核兵器解体による環境被害にはどのような対策が求められるか
3. 核兵器の解体と保持ではどちらが環境に対する被害が少ないのか

これらの問いに答えるために、私たちは 3 人の専門家にインタビューを行いました。

そして、アメリカで唯一核兵器の組み立てと分解を行い、かつ具体的な環境被害が報告されているパンテックス核施設に焦点を絞ってリサーチを進めました。リサーチの結果、核兵器解体による環境被害の情報はあまり公開されておらず、情報公開を求める運動も少ないことから、核兵器廃絶の支持者の中でも核兵器解体に伴う環境被害に対して十分な注目がなされていないのではないかと考えました。さらに、アメリカ政府からの環境被害の公式報告と、住民が主張する実際の環境被害との間には、認識の差があることが分かりました。この差を埋めるためには、政府と市民の橋渡しとなる中立の立場から、この問題に取り組む組織が必要だと考えました。

このようなことから、私たちは以下の 2 つのことを提案します。①国際連合軍縮部の中に核保有施設周辺の環境を守るための機関を設立する。②高校生をはじめ、若い世代の人に核廃絶に関する環境被害を説明したうえで、ポストカードにメッセージを書いてもらい、それを国連軍縮部に送り機関設立を促す。

しかし、1 つ目の提案に関して、国連に新たな機関を設立するためには総会での決議が必要であるため、核保有国がその設立に反対する可能性があります。また、2 つ目の提案では、国連軍縮部に送るポストカードに言語的な問題が生じることが予測されます。

このような課題は残りますが、核廃絶の気運が高まる今、核兵器分解における環境被害は国際社会が立ち向かうべき喫緊の問題であると考えます。なぜなら、私たちは全ての人の生命の尊厳が守られる核兵器のない世界を目指す過程において、1 人の幸福も損なわれることがあってはならないと確信するからです。この私たちの提言を通して、1 人でも多くの人が核なき世界の実現に向けて行動を開始し、環境と共存する核廃絶への道を拓きゆく連帯が築かれることを願います。

## **Environmental Damage of Dismantling Nuclear Weapons**

The menace of nuclear weapons has become more severe than in previous decades. Tensions between the US and North Korea are one of the examples. Despite the current circumstances, the Treaty on the Prohibition of Nuclear Weapons was adopted on July 7, 2017, at a UN conference in New York. The adoption of this treaty is a historical step for human beings, and a great step towards realizing the vision of nuclear abolition. The founding principle of our school, Kansai Soka High School, is “do not build your happiness on another’s misfortune,” so we believe that nuclear weapons must be completely dismantled to make sure that these weapons cannot threaten the lives of current and future citizens. Therefore, assuming the nuclear weapons prohibition treaty will be able to stop the use of nuclear weapons, the next challenge will be to organize dismantling nuclear weapons. In the process of dismantling nuclear weapons, however, the environment, which includes the air and soil, is expected to be seriously affected by radiation from fissile material. This proposal aims to identify the dilemma of environmental damage caused by nuclear weapon, as well as highlight the . The goal of this proposal is to suggest two methods for easing the dilemma. It is a honor if this proposal can contribute to creating the world without nuclear weapons and environmental damage.

## **Literature Review**

### **Definition of Nuclear Weapons**

Although an internationally agreed definition of nuclear weapon has not established, the United States of America defines ‘nuclear weapons’ as any weapon that contains or uses nuclear materials. (US code, 2004) Nuclear materials are defined as material containing any of the following: plutonium; uranium; enriched uranium; or uranium 233 (law.cornell.edu, 2004).

## NUCLEAR WEAPONS ENVIRONMENTAL DAMAGE

The document of the Treaty on the Non-Proliferation of Nuclear Weapons (1970) states

“...facilitate the cessation of the manufacture of nuclear weapons, the liquidation of all their existing stockpiles, and the elimination from national arsenals of nuclear weapons and the means of their delivery...”

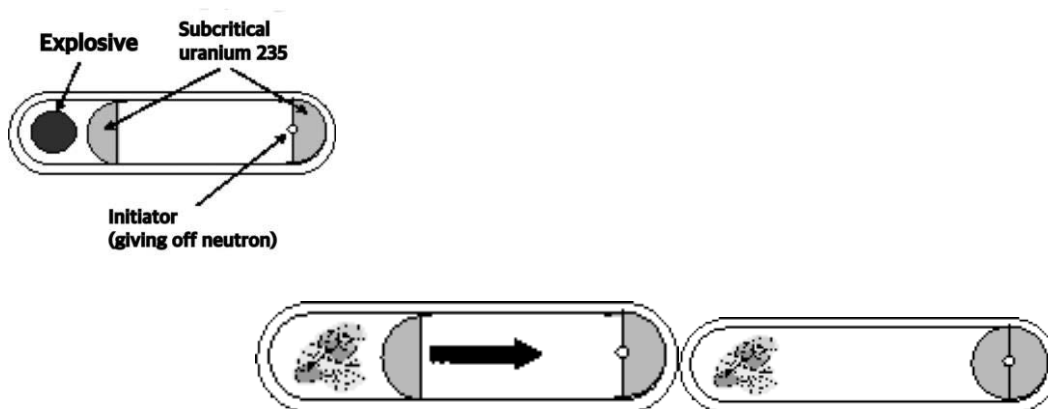
From this description, it can be interpreted that the United Nations Non-Proliferation Treaty considers definition of nuclear weapons includes the systems and technologies that can create nuclear weapons (The United Nations, 1970).

### Anatomy of Nuclear Weapons

All nuclear weapons use nuclear fission to cause an explosion. Nuclear fission requires at least three components: the neutron initiator, nuclear material, and an explosive.

**Uranium bombs (Hiroshima).** Within produced uranium from a mine, uranium 235 as base material of a bomb is only 0.7 % of total. Also, Uranium 235 has to enrich up to 94% to use it as uranium bomb.

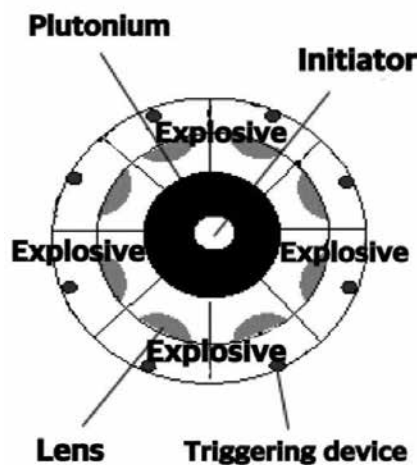
Use two hemispherical containers to make uranium bomb. First, an explosive causes an explosion by operating a computer. As the reaction occurs, the left side of the container moves to right side and hits the initiator. Then, neutrons are given off so that nuclear fission can start and finally causes a tremendous explosion (Ikeda, 2011).



The Structure of Uranium Bomb (Ikeda, 2011)

**Plutonium bombs (Nagasaki).** Plutonium is not natural element but is made inside a nuclear reactor spontaneously. Because of its amount, Uranium 238 absorbs neutrons and is transformed into Uranium 239. However, Uranium 239 is an unstable element, so one neutron changes to one proton, to become “Neptunium 239”. Through the same phenomenon, Neptunium 239 is transformed into “Plutonium 239.”

In the process of making a plutonium bomb, a spherical container made of uranium 238 is used. First, a triggering device sets fire to an explosive and produces an explosion. On this occasion, a lens turns the shock wave caused by the explosion towards the center of sphere. Plutonium is compressed by the shock wave and pressure. Then, the initiator gives off neutrons, and nuclear fission starts, and finally it causes a tremendous explosion (Ikeda, 2011; nhk.or.jp, 2011).



The Structure of Plutonium Bomb (Ikeda, 2011)

**Hydrogen bombs.** Hydrogen bombs use the energy generated when hydrogen nuclear fusion together. Hydrogen nuclear fusion requires two conditions: heat and pressure. Both can be created by an atomic bomb. When an atomic bomb explodes, high temperature and pressure are generated and uranium 238 starts nuclear fission: uranium 235, hydrogen

## NUCLEAR WEAPONS ENVIRONMENTAL DAMAGE

bomb, and uranium 238 explode at the same time. That is why hydrogen bombs have the strongest power among all bombs existing in the world (Ikeda, 2011).

### **History of nuclear weapons**

In 1940, the British government funded the MAUD Committee, the first organization in the world for nuclear weapons (the Atomic Heritage Foundation, 2017). The attempt to build nuclear weapon in America kicked into full gear in 1942 with the project called Manhattan project. Nuclear weapons were dropped for the first time in the history at Hiroshima and Nagasaki at the end of WWII. Until December in the same year, 140 thousand people (city.hiroshima.lg.jp, 2015) in Hiroshima, and 70 thousand people in Nagasaki died (Nagasaki city, 2009).

During the era from 1945 to 1989 called The Cold War, some countries especially Soviet Union and America developed nuclear weapon more and more in order to show their power. Eventually, the world got vast number of nuclear weapons. When The Cold War ended, about 58 thousand weapons were possessed by Soviet Union, America, France, UK, China, and Israel. (Nakanishi, Nishimura, 2016) Now, the stockpile was decreased to 14 thousand (Federation of American Scientists, 2017).

### **How nuclear weapons are dismantled in America**

According to the National Nuclear Security Administration (NNSA), which oversees the dismantling process, several organizations are involved in the process of dismantling. First, nuclear weapon is brought to Pantex Plant, and nuclear material and non-nuclear material are separated. Y-12 National Security Complex is in charge of dealing with uranium, and other non-nuclear components are sent to Savannah River Site and Kansas City Plant. The Office of Secure Transportation makes sure safe transportation of nuclear weapon and punctuality.

**Pantex Plant.** Pantex Plant is built in 1942 in Texas to create nuclear weapons. When WWII ended in 1945, it stopped operation, but in 1952, the facility resumed its operation for assembly and dismantling of nuclear weapons (Tashiro, 2002).

**Los Alamos National Laboratory.** In 1943, Los Alamos National Laboratory was founded and played important role in Manhattan Project as the main place to research and create nuclear weapons. The first nuclear weapon was created in this laboratory (Tashiro, 2002, ATOMICA, 2001).

### **How to Deal with Radioactive Substances**

**Uranium.** As many countries developed nuclear weapon, more and more uranium was enriched. Eventually, 1209.6 tons of enriched uranium exist in 2015. (Research Center for Nuclear Weapons Abolition, Nagasaki University, 2015) In order to dismantle nuclear weapon, we have to deal with vast amount of uranium. One way to deal with them is to generate electricity with a nuclear power plant. Since 90 percent of uranium in nuclear weapon is consists of uranium 235, it needs to be diluted with natural uranium and depleted uranium which mainly contains uranium 238. Through this process, nuclear chain reaction is made slow (ATOMICA, 2006).

**Plutonium.** Same as uranium, the amount of available plutonium has increased. There are 150.6 tons of plutonium in the world (Research Center for Nuclear Weapons Abolition, Nagasaki University, 2015). We can deal with them in two ways. First, it can be used as fuel called MOX. This fuel is made by mixing plutonium, oxide uranium, and depleted uranium (ATOMICA, 2006). The second way to deal with them is to be solidified. Plutonium can be mixed with raw glass, poured into stainless-steel containers, and cooled to be solidified. However, it released lethal amount of radiation just after it solidified. Therefore, it needs to be cooled by air for 30 to 50 years in order to lessen radiation. After radiation

reduced enough, it puts into the container called over pack which is 19 centimeters thick, and buried in the ground (Agency for Natural Resources and Energy, 2014).

### **Research Questions**

Initially, we thought that maintaining nuclear weapons has harmful effects not only towards making a peaceful world but also towards the environment. Now, with the increasing momentum towards nuclear abolition, we sought to understand the effects of dismantling nuclear weapons and realized that there is a possibility that doing so has negative effects on the environment. Our research questions focus on clarifying the environmental effects of dismantling nuclear weapons.

1. What are the environmental effects of dismantling nuclear weapons?
2. What kind of measures can be taken to prepare for the environmental effects of dismantling nuclear weapons?
3. From an environmental perspective, which will have less damaging effects: dismantling nuclear weapons or maintaining them?

### **Methodology**

In order to find the answers to our research questions in the limited time available, one face-to-face interview and two email interviews were conducted. The method of email interview was chosen because there were physical, economical, and time constraints. The three individuals chosen were Ms. Masako Toki, a research associate for the James Martin Center for Nonproliferation Studies; Mr. Katsutoshi Ikeda, vice-principal of Kansai Soka Junior High School and science teacher; and Mr. Yasuyoshi Komizo, secretary general of the Mayors for Peace and former Special Assistant to the Director General of the International

## NUCLEAR WEAPONS ENVIRONMENTAL DAMAGE

Atomic Energy Agency. These three individuals were chosen because the opportunity to contact them was easily acquirable.

The email interview with Ms. Masako Toki began on October 9th. Ms. Toki was asked about her opinions on environmental effects of using, possessing, and dismantling nuclear weapons and also she shared resources related to our topic.

An hour-long oral interview was conducted with Mr. Katsutoshi Ikeda, on October 24th, because meeting him in person was physically possible. He was consulted for resources related to the effects of nuclear weapons on the environment, and he was asked four questions about the environmental effects of storing and disarming nuclear weapons that are related to our research questions.

In early November, an email interview was held with Yasuyuki Komizo. The content was about the process of disarming nuclear weapons and its environmental effects.

### **Results**

Our data collection consisted of interviewing three individuals knowledgeable about nuclear weapons. The three people included Mr. Yasuyoshi Komizo, secretary general of the Mayors for Peace and former Special Assistant to the Director General of the International Atomic Energy Agency; Ms. Masako Toki, research associate for the James Martin Center for Nonproliferation Studies; Katsutoshi Ikeda, vice-principal of Kansai Soka Junior High School and science teacher.

In the interview with Mr. Yasuyoshi Komizo, he provided three links related to the Vienna conference held in 2014, in which the agenda was the humanitarian impact of nuclear weapons. Through the testimony of victims of nuclear explosions, the environmental damage of nuclear weapons was established as fact.

## NUCLEAR WEAPONS ENVIRONMENTAL DAMAGE

In the interview with Ms. Masako Toki, she provided two links about the nuclear threat and the definition of the term “disarmament.” From the two websites we received, we were able to understand how nuclear weapons affect our lives if they are used.

In the interview with Katsutoshi Ikeda, he told us the possibility of environmental damage caused by nuclear weapons, including a pile of missiles in Russia after the partial dismantling of their nuclear stockpile. According to him, nuclear abolition does not stop at removing warheads from nuclear weapons; the ultimate goal is to completely dismantle nuclear weapons.

Especially, one of the resources provided by Mr. Ikeda, was the website, "Negative Legacy of Nuclear Age" reports the real situation of environmental damage around nuclear facilities.

In this website, the journalist, Akira Tashiro introduces various nuclear facilities in Japan, US, and Soviet Union. Especially, The Pantex Plant, located in the United States, is a major facility for constructing, dismantling, and storing nuclear weapons in the US. According to the article, the Ogallala Aquifer, one of the greatest aquifers in the world, is polluted by contaminants such as trichloroethylene and toluene. Since 40 percent of water for domestic use in this region is from the Ogallala Aquifer, this contamination has serious problems for local residents. In addition, several kinds of chemicals including toluene and metals such as mercury and lead are dumped in a depression called playas (Negative Legacy of Nuclear Age, 2002). Because of the disposal of these nuclear materials, the soil and groundwater are contaminated which has also resulted in the closure of several wells.

### **Discussion**

Through our interviews with the experts of nuclear abolition, the information was acquired to answer the first research question, “what are the environmental effects of

## NUCLEAR WEAPONS ENVIRONMENTAL DAMAGE

disarming nuclear weapons?” However, the information was not gained to answer the second and third questions, “what kind of measures can be taken to prepare for the environmental effects of disarming nuclear weapons?” and “From an environmental perspective, which will have less damaging effects disarming nuclear weapons or maintaining them?” By not answering these questions, the environmental damage of dismantling nuclear weapons seems to have not yet been fully examined. There are the people who live near the nuclear facility and suffer from the environmental pollution so the solution to improve the current situation of the people and raise the awareness have been needed. In addition the connection of the environment and nuclear abolition are not known well by everyone. However as long as the environmental damage of nuclear weapons are not solved, it is not said nuclear abolition is achieved. For the second research question, we realized that there are no concrete plans by any organizations to address the environmental damage of nuclear weapons.

Although environmental damage has been observed and recorded (Tashiro, 2002), the official document states that radioactive emission of Pantex does not exceed the set amount (NNSA, 2003). Considering the voice of the neighbors of the facility, it can be assumed that the government is trying to inform the environmental damage of the facility as if it is little enough to ensure safety of neighbors. Therefore, some measures should be taken to protect neighbors from pollution not by the government but by a neutral institution.

However, stopping the operation of the Pantex Plant is not the best option to protect neighboring residents because the facility is necessary to achieve nuclear abolition. In this situation, the dilemma of needing a facility with unavoidable environmental damage can be observed. In order to overcome this dilemma, perhaps the most efficient way to protect residents' lives and the environment without stopping operation of the Pantex plant is needed.

In addition, if the environmental damage caused by the facility becomes severe and the opposition from neighbors increases, the facility may be shut down, as was the case for

## NUCLEAR WEAPONS ENVIRONMENTAL DAMAGE

the Rocky Flats Plant, which was forced to close the facility after the investigation by FBI (Tashiro, 2002). Considering these situations, the environment around The Pantex Plant should be protected for both neighbors and nuclear abolition.

### **Proposal**

In order to enable nuclear facilities to maintain its operation without harming the environment and people's lives, we formed two proposals.

#### **Establishing committee in UNODA**

The establishment of committee which specializes in environmental damage of nuclear weapons is highly encouraged in order to ensure the quality of people's lives and ecosystem which are being jeopardized in the process of decreasing nuclear weapons. UNODA is a neutral organization which promotes nuclear disarmament. Its professionalism and responsibility towards nuclear disarmament are widely acknowledged, which enable UNODA to lead the fundamental solution of the environmental problem in the process of nuclear disarmament. The global society must deal with the environmental risk of dismantling nuclear weapons in reducing the number of nuclear weapons. Therefore, collecting the accurate information of environmental effects of dismantling nuclear weapons is indispensable to figure out the effective measures to it. The promotion of this committee can reassure the environmental concern in dismantling nuclear weapons that creates the momentum for further nuclear disarmament. The activities of the committee are mainly these two things: dealing with the current environmental damage and preventing future damage. The activities of this committee can fill the gap between the environmental damage estimation of governmental institution and the real damage of the residents living near the nuclear weapons facilities by dealing with the environmental impact of nuclear facilities with the neutral perspective.

### **Postcard-writing project**

In order to establish the committee in UNODA, postcard-writing project is proposed. In this project, we give postcard to high school students and people around us. Especially, students from Super Global High School, who are researching about global issues and have high motivation to act for global issues, will be given the postcards. On the postcard, short message to ask establishment of the committee in UNODA is printed. When the postcards are given, receiver will be explained about environmental damage of assembling, dismantling, and maintaining nuclear weapons. After that, each individual will write their opinion or feeling toward the issue on the postcard and send it to UNODA.

In addition to individual activity, holding workshop for postcard-writing is highly encouraged in order to promote this project to more people and encourage UNODA to persuade UN member states to permit the establishment of new committee because the establishment of new committee in UN requires agreement of member states. The officers of UNODA will be invited to this workshop so that they can be convinced of the necessity of new committee seeing the passion of high school students who attend workshop. Being motivated by the students, the officers of UNODA can promote the establishment of new committee which ensures the success process of dismantling nuclear weapons.

Because writing a postcard is easy for everyone, rising awareness of the environmental damage of nuclear weapons is easily achieved. In addition, if UNODA receive numerous postcards from students and civil society, UNODA will feel the responsibility to create the committee to tackle the environmental problem of nuclear weapons.

### **Limitations**

As for the first proposal, UNODA is the agency under the control of the UN. Therefore, there is a possibility that investigations of UNODA are rejected by

## NUCLEAR WEAPONS ENVIRONMENTAL DAMAGE

nuclear-weapon states, especially by a permanent member of the UN Security Council. If the investigations are not allowed, measures against environmental damage of nuclear weapons will be difficult to realize. Moreover, problems of environmental damage are not likely to serve the purpose of UNODA.

Regarding the second proposal, if the persons who were given postcards write were to send them individually, it is difficult for us to measure how many postcards have been sent. Furthermore, writing postcards in Japanese are easy for us; however, UNODA officers might not be able to understand Japanese. In addition, it will be difficult to invite the authorized officers of UNODA to the workshop held by high school students because we do not have access to such authorized officers.

### **Conclusion**

Although the third research question, which was about the comparison between the environmental damage of storing and dismantling nuclear weapons, was not answered, we realized from our research that both storing and dismantling nuclear weapons have dreadful damaging effects on the environment. However, this environmental damage is inevitable for proceeding nuclear abolition. In order to ensure an everlasting world without nuclear weapons, the irreversible disarmament is required, preventing nuclear substances from being used again as weapons. The nuclear facilities such as Pantex Plant contribute to irreversible disarmament by dismantling nuclear weapons. Therefore, in order to tackle this dilemma and protect the environment, as well as the operations of Pantex Plant, two proposals were suggested. In conjunction with postcard-writing project to raise the awareness of grassroots level towards environmental damage of nuclear facilities, the promotion of the committee which deals with environmental issues in UNODA will facilitate the direct support for people who are suffering from the environmental damage of dismantling nuclear weapons. By

## NUCLEAR WEAPONS ENVIRONMENTAL DAMAGE

seriously considering the handling and treatment of nuclear substances when disarming nuclear weapons, we ensure a future where all citizens are able to live their lives freely, without the worry of radiation, or the negative effects of nuclear weapons.

### References

- Asahi Shimbun Company. (2016). Sekai no hakuheiki no kazu. 世界の核兵器の数. Retrieved from [http://www.asahi.com/special/nuclear\\_peace/change/](http://www.asahi.com/special/nuclear_peace/change/)
- Atomic Heritage Foundation. (2014). Britain's early input-1940-41. Retrieved from <https://www.atomicheritage.org/history/britains-early-input-1940-41>
- ATOMICA. (2001). Manhattan keikaku. マンハッタン計画. Retrieved from [http://www.rist.or.jp/atomica/data/dat\\_detail.php?Title\\_Key=16-03-01-09](http://www.rist.or.jp/atomica/data/dat_detail.php?Title_Key=16-03-01-09)
- ATOMICA. (2006). Kakuheikiyou no purutoniumu to kounoushuku uran no gennshiro heno tennyou. 核兵器用のプルトニウムと高濃縮ウランの原子炉への転用. Retrieved from [http://www.rist.or.jp/atomica/data/dat\\_detail.php?Title\\_Key=07-02-01-08](http://www.rist.or.jp/atomica/data/dat_detail.php?Title_Key=07-02-01-08)
- Agency for Natural Resources and Energy. (2014). Koureberu houshasei haikibutu to chisou shobunn. 高レベル放射性廃棄物と地層処分. Retrieved from [http://www.enecho.meti.go.jp/category/electricity\\_and\\_gas/nuclear/rw/hlw/qa/syo/syo03.html](http://www.enecho.meti.go.jp/category/electricity_and_gas/nuclear/rw/hlw/qa/syo/syo03.html)
- Federation of American Scientists. (2017). Status of World Nuclear Forces. Retrieved from <https://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/>
- Genbaku ni yoru higaijoukyou. (2009). 原爆による被害状況. Retrieved from <http://nagasakipeace.jp/japanese/kids/higai.html>
- Gensuikin. (2004). Beikoku no kakuheiki kaitai joukyou to kaku kaihatu no rekishi reki de-ta. 米国の核兵器解体状況と核開発の歴史的データ. Retrieved from <http://www.gensuikin.org/nw/dismntl1.htm>
- Ikeda, Masanori. (2011). Uran bakudan (Hiroshima gata genbaku) no shikumi. ウラン爆弾(ヒロシマ型原爆)の仕組み. Retrieved from <http://www.hiroshima9.com/chishiki/u-genbaku.html>
- Ikeda, Masanori. (2011). Purutoniumu bakudan Nagasaki gata genbaku) no shikumi. プルトニウム爆弾(ナガサキ型原爆)の仕組み. Retrieved from <http://www.hiroshima9.com/p-genbaku/p-genbaku.html>
- Ikeda, Masanori. (2011). Uran bakudan to Suiso bakudan no soui (kaku bunretu bakudan to kaku yugou bakudan). ウラン爆弾と水素爆弾の相違(核分裂爆弾と核融合爆弾). Retrieved from <http://www.hiroshima9.com/suibaku/suibaku.html>
- National Nuclear Security Administration. (n.d.). Dismantlement and Disposition. Retrieved from <https://nnsa.energy.gov/ourmission/managingthestockpile/dismantlementanddisposition.html>
- NHK. (2015). Nanajyuunenme no sensou to heiwa. 70 年目の戦争と平和. Retrieved from <http://www.nhk.or.jp/special/70years/sp/pluto.html>

## NUCLEAR WEAPONS ENVIRONMENTAL DAMAGE

NNSA. (2003). Chapter 4 Conclusions. *SUPPLEMENT ANALYSIS FOR THE FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE CONTINUED OPERATION OF THE PANTEX PLANT AND ASSOCIATED STORAGE OF NUCLEAR WEAPON COMPONENTS*. Retrieved from [https://energy.gov/sites/prod/files/nepapub/nepa\\_documents/RedDont/EIS-0225-SA-03-2003.pdf](https://energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/EIS-0225-SA-03-2003.pdf)

Research Center for Nuclear Weapons Abolition, Nagasaki University. (2015). Kounoushuku uran no hoyu ryou. 高濃縮ウランの保有量. Retrieved from [http://www.recna.nagasaki-u.ac.jp/recna/nuclear/fms/heu\\_201706](http://www.recna.nagasaki-u.ac.jp/recna/nuclear/fms/heu_201706)

Research Center for Nuclear Weapons Abolition, Nagasaki University. (2015). Bunri purutoniumu no hoyuryou. 分離プルトニウムの保有量. Retrieved from [http://www.recna.nagasaki-u.ac.jp/recna/nuclear/fms/pu\\_201706](http://www.recna.nagasaki-u.ac.jp/recna/nuclear/fms/pu_201706)

Shisha ni tuite. (2015). 死者について. Retrived from <http://www.city.hiroshima.lg.jp/www/contents/1111638957650/index.html>

Tashiro, Akira. (2002). Pantekkusuu Kakushisetu nouminn obiyakasu idomizu osenn. パンテックス核施設 農民脅かす井戸水汚染. Retrieved from [http://www.hiroshima.peacemedia.jp/abom/nuclear\\_age/us/020407.html](http://www.hiroshima.peacemedia.jp/abom/nuclear_age/us/020407.html)

Tashiro, Akira. (2002). Rosuaramosu kokuritu kenkyujou jou. ロスアラモス国立研究所 上. Retrieved from [http://www.hiroshimapeacemedia.jp/abom/nuclear\\_age/us/020127.html](http://www.hiroshimapeacemedia.jp/abom/nuclear_age/us/020127.html)

The United Nations. (1970). The document of the Treaty on the Non-Proliferation of Nuclear Weapons. Retrieved from <https://www.un.org/disarmament/wmd/nuclear/npt/text/>

U.S. Code. (2004). Retrieved from <https://www.law.cornell.edu/uscode/text/18/832>

## Appendix

## The script of interview with Mr. Katsutoshi Ikeda

核弾頭に相当する「核の爆発装置」と、これを「相手のところまで飛ばす手段」の二つが合わさったものを「核兵器」といいます。その核兵器を、ロシアとアメリカが減らしましょうという条約（例えば START とか）を結んでいるわけです。これが核の「削減」と言われているもの。

でもその中身が問題で、まず、核兵器を解体するとはどういうことかということ、それがミサイルなのか何なのかは分かりませんが、そこから核弾頭の部分を外しました、となればその状態で一応核兵器は「解体」されたことになるわけです。「核弾頭」が「飛ばす手段」から切り離されてるからね。でも、これをもう一回組み合わせてスイッチを入れたら打てるわけですよ。これでは、本当の意味で核兵器が「削減」されたことにならないよね。なので、この核弾頭の中にある核物質を不可逆的な形で取り除いて、使えないようにしてしまわない限り、核兵器を減らしたことにならないんじゃないかということになるわけです。このことは広島原爆資料館のホームページに出ています。

Q 核保有国の核弾頭とミサイルは全部くっついているんですか。

A くっついています。いつでも発射が可能。しかもミサイルの狙いが入力されて、「諸元」って言うんだけど、どの方向にどの角度で打ち出して、何分飛ばしたらどこに落ちるかという。

大陸間弾道弾（ICBM）ってあるでしょ。「弾道」というのは最後の最後まで誘導するわけじゃないんですよ。最初に角度とか方位とかを決めてロケットに点火する。高いところまで打ち上げて弾頭部分を切り離すわけ。後は慣性で飛ばしている。これが大陸間弾道弾なんです。一旦大気圏の外に出て、そこから高速で再突入してくるので、まず迎撃がしにくい。それと、大気圏に再突入しないといけないのだけど、以前、スペースシャトル・コロンビア号が任務を終えて戻ってくるときに、耐熱タイルが剥がれてしまっていたため途中で燃え尽きてしまって、宇宙飛行士全員が亡くなってしまった事故がありました。このことからわかるように、大気圏外から高速で地上に戻って来るためには、弾頭が燃え尽きてしまっても意味がないので、大気圏に再突入する際、耐熱シールドで弾頭を守って、目標とする相手の都市の頭上で爆発させる必要がある。現時点で、北朝鮮は ICBM を打ち上げるところまではできるけど、大気圏に再突入するときには核弾頭を守るための耐熱シールドの技術を持ってないか、まだ出来上がっていないので、その技術を完成させるための実験を繰り返していると言われています。今、北朝鮮は対外的にはその技術が完成したと言っているけれど、おそらくまだだろうと軍事の専門家は見ている訳です。

Q 核兵器は、大気圏に再突入して目的地に近づいてから起爆させるということですか。

A そうです。

Q じゃあ、目的地まで辿り着けなかったら起爆もできないということですか。

A ええ。だから、たどり着くまでの間に撃ち落したいわけです。まず、相手が発射した直後から大気圏を出るまでの間に迎撃して撃ち落とす。これは「ブースト段階」と言いますが、加速中なのでまだ遅いから狙いもつけやすいし、大量に熱を出すので追尾もしやすいから、この段階で撃ち落とせるような迎撃手段が研究されています。

でもどこのミサイル基地から発射されるかは分からないから、国境沿いに多数の迎撃ミサイルを常時配備しておかないといけないので、そんなことが本当にできるかどうかというのは疑問視されている。アメリカでは盛んにこの実験をやっているけどね。

日本の自衛隊もイージス艦を日本海に3隻配置して、北朝鮮がいつミサイルを撃っても、日本に落下するコースであると判断したらすぐに撃ち落とせる状態にあるとは言っているけれど、本当に撃ち落とせるかどうかはわからない。もし万が一、撃ち漏らしたら、まだ起爆していませんから、落ちてくる段階で破壊してしまおうというのがPAC3だね。大気圏に再突入して起爆するまでの間に破壊してしまおうという地上配備型の迎撃ミサイルシステムです。ただ、ブースト段階で破壊したとしても、確かに起爆はしないけれど、そこには間違いなく核物質が積み込まれていて、それが空中で飛び散ってしまう。すると広いエリアが、濃厚な核物質によって汚染されてしまうという可能性はある。

Q 核爆弾は地上で爆発するんですよね。

A それは種類によって違います。打ち上げてから何分経ったら起爆するとあらかじめタイマーで設定してあるのか、リモートコントロールでボタンを押した爆発するようなになってるのか。

Q 自ら起爆した場合と、迎撃されて爆発した場合は、放射線による被害は同じですか。

A いいえ、違います。どの高さで爆発したかによって核爆発の影響は全然違うんです。例えば、広島のように上空500メートルで爆発させると地上の広い範囲の目標物をなぎ払って殺傷する能力を持っているんだけど、北朝鮮はいざアメリカと戦争になって核攻撃されても大丈夫なように地下に司令部とか要塞を作っているわけですよ。今、アメリカが北朝鮮に盛んに脅しをかけているのは、核弾頭を地上スレスレとか、ミサイルの先端を非常に硬く尖ったものにしておいて地面に突き刺して地下1キロぐらいで起爆するようにしておけば、地下壕とかも一気に吹き飛ばせるぞ、そういうものがうちにはあるから地下に逃げ込んでもだめだぞ、と脅しをかけているわけ。

Q ジャあ目的によって爆発させる高さを変えたら、被害の範囲とか規模も違ってくるんですね。

A そうです。それを確かめるために、米・ソ・英・仏・中の核保有国は、かつて盛んに空中で核実験を行い、被害がどれくらいのエリアまで及ぶか、起爆させる高さは何メートルぐらいが一番いいのかというデータを集めていたわけです。

最近、水爆クラスの爆弾を大気圏に再突入させずに上空 50 km とかで爆発させる「EMP 攻撃」というものが、クローズアップされています。これだと放射線による被害は地上にほとんど及ばないし、空気がないから当然爆風も起こらない、熱エネルギーも広いエリアに広がるから大丈夫。だから核兵器使用の心理的ハードルが下がるのね。ところが、高空で爆発させると、大量の荷電粒子（イオンみたいなもの）が飛び出して空気中のさまざまな物質にぶち当たり、また新たに荷電粒子を生み出す。そうすると、空間で電気を持った粒子が高速に移動するとそれは「電流」になります。この電流が、送電設備や変電所などから送電網の中に入り込むと、それまで通常レベルでコントロールされていたところに、異常な電流が大量に流れ込んで焼け落ちてしまうわけよ。そうすると、広いエリアで送電網がダウンし停電が起こる。しかもそれが同時多発的に一斉に起こるから、復旧にはものすごい時間がかかる。例えば、関東の上空 100km で爆発させると、首都圏は愚か東北の真ん中ぐらいから東海地方の半分まで、日本の面積の半分、人口でいうと四分の三ぐらいの人が集中しているエリアで電気が使えなくなるという研究があります。この方法だと核弾頭を大気圏に再突入させる技術がいらないので、水爆クラスの起爆装置とそれを高空まで運ぶ手段さえ持っていればできる攻撃なので、北朝鮮のレベルでも今すぐ実現可能なんです。

Q 一口に「核兵器」と言っても色々な攻撃手段があって、一概に問題点や解決方法は出せないですね。

A そうなんです。

EMP 攻撃だと、放射線で即死する人もいないし後遺症も出ない。だから道義的困難も受けにくいと考えるかもしれないね。それに、相手の国の「電力」という生命線を長期間にわたって止められるのだから、その国の経済には大打撃だよね。

これは影響を受ける人口という面から見れば、例えば広島型原爆を地方都市に一つ落とすのとは桁が違う。ただこれまで EMP 攻撃が行われたことはなく理論的に言われているだけなので、実際にどんな被害がどれくらいの規模で起こるのかはよく分かっていない。ただ可能性としてはあるということで、今ちょこちょこ言われるようになっている。

核兵器はこんな風に使い方がいろいろある。だから「核兵器を解体します」というだけでは、「時間さえかければいつでも発射可能な状態に戻せます」というのと同じなのでダメなんです。

だから、その核弾頭の中にある核物質（濃縮ウランやプルトニウムなど）を抜き取って、使えない状態にまでしてあげないといけない。その一つが地中深くに埋めてしまうという方法です。それと発電所の中で燃やしてしまう方法の二つが主に考えられています。

米ソの本音は核ミサイルを減らしたい。なぜかと言うと、米ソ冷戦時代に大量の核弾頭が作られました。そしてそれを運ぶためのミサイルや潜水艦、戦略爆撃機などが配備されたんだけど、それを維持するだけで、例えば盗まれたら困るから常に配備されているところを警備しないとイケない。そのための人件費が 24 時間 365 日かかり続けるわけ。ただ倉庫に眠らせておくだけというのではないので、装置を維持するだけで電力が必要だったり、工場を動かさないといけなかったりと、核兵器は維持するだけでも莫大なお金がかかる。

その上、それが使えないといけない。例えば、ロケットの中に詰め込んでいる燃料はだんだん劣化していくので、それを抜いてもう 1 回詰め替えるとか、そういうこともしないと核兵器としての意味がないからさ。そういったことをずーっと繰り返していかないとイケないので、最初にソ連が音をあげるわけ。「経済的にやってられへん」と。当然アメリカもやせ我慢してるから「いやーソ連に負けている負けにはいかない」と。で、そこになんかのお金をつぎ込んでるわけやけど、でもソ連が減らすって言うてくれたら渡りに船なわけやん？「じゃあしょうがないなー、うちも減らそうか。世の中、世界的にも反核運動が盛り上がってきているし、とういうようなことで減らしていくわけですよ。減らしていくと何が起こるかっていうと、まずこの核兵器の運搬手段とかがね、爆撃機で持って行ってバーンと落とすのは第二次世界大戦の発想で冷戦の前半の部分っていうのは、アメリカは B1-B っていう戦略爆撃機を大量に配備してね、今グアムにもあったりするけど、それで現地まで行って落とすぞと、ところがミサイルが段々高性能になってくると、現地まで行って落とす前に撃ち落とされる可能性がある。それだったらもう誘導の精度が上がってきたからね、ICBM とか、今度 ICBM っていうのは発射地点が特定されてしまうと、今度そこを先に攻撃されてしまったら、自分たちのその、先に先制攻撃はせーへんって言うてるねんけど、反撃する手段が失われてしまうので、先制攻撃をされると、だからそうならないように潜水艦発射、潜水艦はどこにいるか分からないから、いきなり浮上してポンと打ったら、これ SLBM。それでこれが 1 番怖い。で北朝鮮はまだその SLBM っていうのは満足なものは持っていないというので、ただこれを打つのが怖いので、それを今開発中という噂があって、そのために時間稼ぎしているのではないかという風に言われています。アメリカとしては北朝鮮に SLBM を完成されてしまうのが 1 番怖い。1 番それを警戒しています。

で、そのロケット側ね。今大半はそのロケットで運搬すると、ミサイルになっている。それでこのミサイルの中のロケット燃料っていうのも実はかなり有毒な物質。それが漏れ出したら健康被害が及ぶそういうものなので、まずこっちの無毒化の作業、まあいわゆるこっちは熱で分解する、で安全な物質に変えるとかそういった作業をしないといけないし、それを安全に進めるための政府の設備も作らないといけないし、これはこれで大変。ところがどうなったか知ってる？ロシアに行くと野積みされている。お金がないから。

Q. 危ない燃料っていうのは爆弾の筒の中に入っていたら大丈夫なんですか

A. まあそれはね。ただ、鉄でできてますよね。野積みされてますよね。雨降りますよね、錆びていきますよね。ボロボロになって割れ出す可能性はいつあるか分かんないんですよ。

Q. じゃあ例えば核弾頭付きのミサイルがあると、まあ保管しているじゃないですか、その核物質って放射能を出しているじゃないですか。それは外に漏れるってことはないんですか。その、何て言うか...爆発するまでは、保管している段階でちょっと漏れてるみたいなのはないんですか

A. 当然あります。

Q. それもあるんですか！？じゃあ持ってるだけで染み出てるってことですか。

A. 当然。だって、放射線を、あのねまず核兵器と原子力発電所で使われている燃料、決定的な違いは、濃度なんです。例えば、自然界にも放射線は存在する。いろんな鉱物の中に放射線を出す物質、成分も含まれている。日本国内にも当然ありますから。西日本の方が東日本より放射線レベルがちょっと高い。花崗岩、六甲山なんかはね、花崗岩の塊なんです。それは火山が噴火したときに中からマグマが地表に染み出してくるでしょ。それが冷えて固まる。で花崗岩ができるんだけど...（電話）...それでその花崗岩の中に放射線を出す物質が微量に入ってるわけ。なのでそういう土地そのものが、そういう微量に放射線を出す物質を含んでるために、自然界の放射線レベルは西日本の方がちょっと高い。

Q. 東日本はなんで花崗岩がないんですか。

A. その岩石の成分が違うから。そもそもね。

で、まあそういうのがいっぱいある。でもそれじゃ花崗岩持ってきてね、放射線出てるからと言って、じゃあこれで原子力発電しましょう、できへん。めちゃくちゃ薄いから、仮にそれを濃縮して集めたとしても、濃縮して集めることにかかるエネルギーの方が莫大にかかって、そこから取り出せるエネルギーは微々たるものだから、これは意味がない。じゃあ経済的にね、コスト的に何が放射線を取り出して、それで発電ができるようなものになるかっていうと、ウラン、プルトニウム。まあそれは基本的にウラン。ウランは自然界にかなりまとまった形にある、局所的にですけど、まとま

ってあって、それを取り出せばかなりの放射線を出してくれる。ただし、自然界から掘り出したままでは何にもならない。ウランにも同位体がいくつかあって、ウラン 235 とか、ウラン 238 とか。そういう中で発電に使えるたくさん放射線を出してくれるウラン。これをまずあんまり放射線を出さへんウランと分けなあかん。その分けた結果、こっちにウラン 235、あまり放射線を出さへんウランが残る。これが劣化ウラン。聞いたことありますか？ どういうところに使われているか知ってる？（議論）劣化ウランというのはね、ウランていうのはさ、原子番号でいうとすごく、98 番とか、あれ 90 番だったかな、先の方じゃん。つまり密度がすごく高い。つまり重たい。同じ大きさを持っていたてもめちゃくちゃ重たい。こういうものは何に使えるか。何に使いたいか。（議論）砲弾ね、弾。慣性エネルギーが大きいから、例えば同じピストル、同じライフルで打ったときに、機関銃で打ったときに、それだけ重たいほどまっすぐ飛んでくれるし、貫通力が高いし、なので米軍は劣化ウランを弾に使ってる。劣化ウラン弾。兵器で言えばそなん。ただ自衛隊は持ってない。微量に放射線が出るでしょ。劣化ウランとは言え、ウランですからね。原子力発電所からヴァーってダダ漏れみたいなそんな感じではないんやけど、でも微量に放射線を出すというところから、日本ではそういったものは心理的に受け入れられないので、自衛隊では使っていない。だからかつてその米軍の射撃場ってあるんですよ、いくつか。日本の無人島にさ、米軍にまるまる貸してて、そこで飛行機が来てさ、爆撃をしたりとかさ、射撃をしたりするっていう訓練の場所があるんですよ。そこで劣化ウラン弾が使われてたことがあるとき分かって、それでえらい問題になった。日本が米軍にかけ合ってそのところを使った弾を回収するのと、それからその土を入れ替えろというようなことをやってもらった。多分日本がお金が出してると思うけど。でもそれが海の中にパスパス打ってるやつもあるから、これはどないすんねんみたいな話で、えらい一時的に問題になった。これは劣化ウランの話。で、そのウラン 238 っていうたくさん放射線を出してくれるやつも、でもウラン鉱石の中には 0.0 何%しかない。0.3%かな。それを 1%とか 2%、数%のボーダーまで濃縮すると、原子力発電所で使う核燃料になるんですよ。ところが、これではエネルギーを取り出す効率はそんなによくない。じっくり長い時間をね、かけて出していくのには向いてるんだけど、一気にどーんには向かないので、そのためにはそれをもっと濃縮する必要がある。で、これが兵器級のウランと呼ばれるもの。ウランタイプの核弾頭があると、こいつはこれを取り出しました。取り出しても例えばこれをこのまま埋めましようとなっても、もう濃縮されてるがゆえにものすごく強烈な放射線を出すんですよ。それをシールドするためには、どうしたらいいのか。周りを分厚いこう鉛で覆って、

ウランタイプの核弾頭を解体し、地に埋めてもウランが濃縮されてるためとても強烈な放射線を出す。だから、鉛で覆いガラス硬化する。たった1発を解体するのにコストがかかりすぎる。だから、これをもう一度薄めて、民生用にしたものを再流通させる。ウラン型のもは初歩的で、取り出せるエネルギーが低い。ウランが核分裂を起こし、プルトニウムになる。とても毒性が強いがエネルギー効率が良い。だから、プルトニウムを使った核兵器が主流。イランが国内に原子力発電所を建設したことについて IAEA が、それは各不拡散条約に違反するとして、建設取りやめを求めた。建設が取りやめられた。

Q. 埋めるほかに核物質を鉛で覆うなど意外に、更に無害化することはできない？

A. 原子は他の原子には変わらないから、埋めるか使うかしか無理。中性子を入れることにより、放射線を出さないようにするための研究は行われてるが、理論的に言われているだけで、現実的でない。

そうすると、埋めるか使うかになる。埋めるのにもコストがかかり、結局野積み状態になる。核物質を運ぶひとは莫大な放射線を常時受けるため当然死んでしまう。

ウラン燃料を今のまま掘り続けると100年持たない。22世紀にはウラン資源は枯渇するといわれている。

Q. 天然資源のウランが枯渇するなら、核兵器は減るのか？

A. ロシアは枯渇するのが分かってるからウラン資源が枯渇するのが分かってるから、核兵器から取り出した核物質を埋めるとかもったいない事はできないといってる。なので結局へこうそくじょうそくろでプルトニウムを使い発電を行なえる。投入したエネルギーより取り出したエネルギーの方がデカイ！

高速増殖炉が実用化されている国はない。研究で、でも日本の研究も、頓挫してしまった。フランスのスーパーフェニックスというところでは、なんとか動いているらしい。ロシアも、7機ぐらい作ってて、そのうち4機ぐらい使える。だから、高速増殖炉の道は、先細り。だから、通常の原子力発電所で使っているウランにプルトニウムを混ぜて、MOX 燃料で発電するしかない。そうしたら、ウランの代替になる。ロシアは、うちの貴重な資源だ。ガラス固化体にして埋めるなんて、考えたくない。薄めて、MOX 燃料にして使いたいと考えているみたいなんですよ。

Q RQ3 保持するか、分解するか？

そのリスクに、どこまでいろんなものを計算式に入れるかということによるんですけど、核兵器が兵器として存在する限り、それが使われるリスクはゼロじゃないわけ。一旦使われてしまうと、福島原発事故の比じゃないわけですよ。そのリスクも、どうゆう金額換算するのかは知らないけど、そのリスクによって失われてしまう経済的

な損失、それをどう評価するかだけど、でも、それって非現実的だよ。だったら、多少コスト的には、核兵器のまま兵器として保持することに比べて、分解して、それを安全に保管する、もしくは平和利用に転用していくってことは、環境に対する負荷であったりとか、経済的なコストであたりってというのは、多少増えてしまうのかもしれないけれど、兵器が使われてしまうというリスクまで含めてトータルで考えてしまえば、やっぱりこっち（核兵器を保持し続ける）の方が（被害は大きい）。

Q 一個のミサイルに何個もの核弾頭？

例えばね、広島を中心に一個と、そうするとその爆風の及ぶエリア、半径5キロとか、が破壊されてしまうわけだよ。でも今、弾頭が小型化されて威力が上がってきて、例えば広島に落とされたのは5キロとんだっただしょ、でも今一発で30キロトンとか。でも。そう行ったものを、中心で一発爆発させるとしたら、そのエリアはじゃあ30キロトンは5キロトンの6倍だから、6倍のエリアがダメになるわけじゃない。これを分散させることで、より広いエリアにダメージを与えることができるのが一つ。もう一つは、爆発する寸前まで一発でくると、迎撃しやすいでしょ。だから、早い段階で分解してバラバラにして大量にしてしまうと、迎撃のしようがなくなるから。

だから、軍事の専門家たちっていうのは、ずる賢いことをいっぱい考えるわけだよ。いかに攻撃されないようにするか。

Q 潜水艦から核兵器を発射する時、潜水艦は大丈夫？

SLBM は、なんで難しいかっていうと二段階になっていて、最初は、本体をポーンと発射管から打ち出すんですよ。打ち出して、空中に出たところから、点火するんですよ。だから難しい。よく youtube でも流れてるんだけど、北朝鮮の SLBM の実験で、空中までできたけど、そこで、横倒しになって、バンって爆発して終わるっていう映像が流れているんだけど、これは、打ち出すことまでできても、空中で浮かんでいるわけだから、そこで姿勢をうまく保持して、それで点火して飛ばすっていうのは非常に難しい。

The links provided by Ms. Masako Toki provided us

<http://www.nti.org/>

<http://www.nti.org/learn/glossary/#D>

The links provided by Mr. Katutoshi Ikeda

<http://www.ni.tama.ac.jp/yama/000101.html>

<http://jolissrch-inter.tokai-sc.jaea.go.jp/pdfdata/JNC-TJ1420-99-023.pdf>

## NUCLEAR WEAPONS ENVIRONMENTAL DAMAGE

[http://www.pcf.city.hiroshima.jp/Peace/J/pNuclear6\\_3.html](http://www.pcf.city.hiroshima.jp/Peace/J/pNuclear6_3.html)

The links provided by Mr. Komizo Yasuyoshi

[www.bmeia.gv.at/en/european-foreign-policy/disarmament/weapons-of-mass-destruction/nuclear-weapons-and-nuclear-terrorism/vienna-conference-on-the-humanitarian-impact-of-nuclear-weapons/](http://www.bmeia.gv.at/en/european-foreign-policy/disarmament/weapons-of-mass-destruction/nuclear-weapons-and-nuclear-terrorism/vienna-conference-on-the-humanitarian-impact-of-nuclear-weapons/)

[https://www.bmeia.gv.at/fileadmin/user\\_upload/Zentrale/Aussenpolitik/Abruestung/HINW14/Presentations/HINW14\\_S1\\_Presentation\\_Michael\\_Mills.pdf](https://www.bmeia.gv.at/fileadmin/user_upload/Zentrale/Aussenpolitik/Abruestung/HINW14/Presentations/HINW14_S1_Presentation_Michael_Mills.pdf)

<https://www.dotatomicreportersdotcom.files.wordpress.com/2014/11/factsheetarn114112014.pdf>

ラーニングクラスター2017 年  
ハイスクール平和提言

**Protecting Human Rights from the Fear of Nuclear Weapons**

核兵器の脅威から人権を守るために

人権グループ

43 期 佐藤美樹 杉原理沙

44 期 江崎智慧 吉兼由美子

1945 年、広島と長崎に原爆が投下され、21 万人もの人々が亡くなりました。原爆投下から 72 年経った今もなお、1 万 5000 発以上の核弾頭が世界には存在しています。また、世界では核実験が繰り返され、人々の人権を脅かしています。

国際連合によると、「人権とは人間が生来持っている権利」です。人権と核の関係について、創価学会第 2 代会長戸田城聖は、「核あるいは原子爆弾の実験禁止運動が、今世界に起こっているが、私はその奥に隠されているところの爪をもぎ取りたいと思う。なぜかならば、われわれ世界の民衆は、生存の権利をもっております。」と述べています。戦時中に使用されたプロパガンダは、人々の敵国に対する憎悪や嫌悪を掻き立てるものでした。他国に対する憎悪や嫌悪が核兵器の使用という悲劇につながったのではないかと考えました。

これらの先行研究を踏まえて、今後核による悲劇を 2 度と繰り返さないために 3 つの研究課題を考えました

1. 戦時中、人々の人権に何が起こったのか
2. 現代社会では、どのような憎しみ、嫌悪の思想があり、人権にどのような影響を及ぼしているのか
3. 人々の人権を守るため、どのように憎しみや嫌悪を転換することができるのか。

これらの 3 つの設問を元に 4 つの機関にインタビューを行いました。インタビューを通して、戦時中、人権という概念が人々の中になかったことを知りました。また、多くの兵士は敵を殺すことに心理的抵抗があったこと、しかし、軽蔑語の使用や身近の人の死が、殺人に対する心理的抵抗感を下げること在学习しました。核兵器の使用を容認する考えの根本に人権に対する無知、また軽蔑語の使用があるのではないかと考え、現代社会に潜む軽蔑語の使用を改めることが人権擁護、ひいては核廃絶へとつながるのではないかと考えました。また、被爆者の方の、身近な運動が社会的な運動になると青年への期待を受け、若い世代が核廃絶に取り組んでいくことの重要性を学びました。

インタビュー結果を基に、日本の中学・高校で「人権 DAY」を設けることを提案します。この日には、保護者の方も学校に招待して、一人でも多くの人の核廃絶に対する意識の向上を目指します。人権 DAY では、人権と核兵器をテーマにしたスピーチコンテストと親子人権セミナーを行います。生徒はスピーチを作成するにあたり、核兵器について研究し、自分の意見をまとめます。発表を通して、友達や親にもメッセージを伝えていけますし、人前で発表することで、自信が付き、核廃絶により一層積極的に関わるきっかけになると考えます。親子人権セミナーでは、身近な軽蔑語や言葉の使い方について親子で話し合うセミナーの開催です。どんな表現が人権を脅かしているのか、どのように話せば、相手への敬意を示していけるのかを話し合います。このような身近な取り組みが、核廃絶につながるとのではないかと考えます。この研究を通して、学生のうちから核廃絶に向けて興味や危機感を持つことが、後に地域や世界を変えていく大きな平和運動となりゆくことを学びました。本論文を通して、核廃絶に興味を持つ人が増え、身近なところから平和への行動を開始してゆく人が増えることを望みます。

### **Protecting Human Rights from the Fear of Nuclear Weapons**

In 1945, two nuclear bombs were dropped on Hiroshima and Nagasaki, and 210,000 people were killed. Since then, 72 years have passed. However, there are more than 15,000 nuclear warheads in the world. Some countries are still making nuclear missiles and conducting nuclear tests. Even now, the fear of nuclear weapons threatens many people's lives. Josei Toda, the second president of Soka Gakkai, declared that "I want to expose and rip out the claws that lie hidden in the very depths of nuclear weapons. Because we, the citizens of the world, have an inviolable right to live" (Josei Toda Website Committee, n.d.). In this research, we sought ways to achieve nuclear abolition from the viewpoints of human rights.

### **Literature Review**

In order to learn what happened during wartime, we researched the nuclear bombing history of Hiroshima and Nagasaki. We also researched the definition of human rights to understand what kind of human rights violation happened during wartime. We also explored the cause of bombing and attacking others to understand the causes of human rights violation.

### **Bombing in Hiroshima and Nagasaki**

In 1945, two atomic bombs caused terrible damage on August 6<sup>th</sup> in Hiroshima and on August 9<sup>th</sup> in Nagasaki. When the bombs were dropped, 210,000 people were killed in Hiroshima, and 140,000 people died in Nagasaki (National Archives and Records Administration, n.d.). The heat rays from the atomic bombs burned people's skin and many buildings. The temperature of heat rays was about 2,000 degrees Celsius, which was as high as the temperature of the surface of sun. Furthermore, about 10 tons pressure of shock wave and a windstorm with a velocity of 160 meters destroyed the buildings in Hiroshima and Nagasaki into

## PROTECTING HUMAN RIGHTS

pieces (The Japan Council against Atomic and Hydrogen Bombs, n.d.). 96.5 % of the people who were within 500 meters from the ground zero were killed in an instant. It was impossible to survive around ground zero (National Archives and Records Administration, n.d.).

Recognizing the indescribable damage and pain that people of Hiroshima and Nagasaki received, various activists and organizations have claimed the inhumanity of nuclear weapons. In the declaration calling for the abolition of nuclear weapons, Josei Toda, a Buddhist peace activist, said;

“I want to expose and rip out the claws that lie hidden in the very depths of nuclear weapons. I wish to declare that anyone who ventures to use nuclear weapons, irrespective of their nationality or whether their country is victorious or defeated, should be sentenced to death without exception. Why do I say this? Because we, the citizens of the world, have an inviolable right to live” (Josei Toda Website Committee, n.d.).

International human rights NGO, Human Rights Now also points out that “any use of nuclear weapons is a grave and unacceptable violation of human rights” (Human Rights Now, n.d.). In addition, a former president of the United States, Barack Obama, stated;

“Just as we stood for freedom in the 20th century, we must stand together for the right of people everywhere to live free from fear in the 21st century. As the only nuclear power to have used a nuclear weapon, the United States has a moral responsibility to act. We cannot succeed in this endeavor alone, but we can lead it, we can start it”

in a speech in Prague, (Koehler, 2016). Like this, many people recognize the inhumane nature of nuclear weapons and the need to abolish the nuclear weapons to protect human rights.

## PROTECTING HUMAN RIGHTS

### Human Rights in War Time

According to the Office of the United Nations High Commissioner to Human Rights, human rights are defined as “rights inherent to all human beings, whatever our nationality, place of residence, sex, national or ethnic origin, colour, religion, language, or any other status. We are all equally entitled to our human rights without discrimination. These rights are all interrelated, interdependent and indivisible” (Office of the United Nations High Commissioner for Human Rights, n.d.). Thus, concept of Human Rights was not clear in wartime.

When the atomic bombs were dropped on Hiroshima and Nagasaki, human rights of the ordinary citizens were violated in many ways. For example, many hibakusha, those who were affected by nuclear fallout, were not able to eat food safely. Ms. Ayako Kozuka was 16 years old when the a-bomb was dropped on Hiroshima. Soon after the bomb was dropped, black rain fell over a wide area. Reflecting that time, she said,

“I had hated tomatoes before. After the bombing, my mother brought and fed a tomato which had been polluted by black rain. I felt it tasted delicious for the first time. Next day, however, my mother and I suffered from high fever, nausea and diarrhea. This shows how radioactive contamination violated people’s rights to eat.” (Hibakusha Testimony Library, n.d.).

Like this, the use of nuclear weapons causes food contamination and violates people’s right to eat food safely.

Historically, human rights violation occurred in many incidents during wartime. During World War II in Germany, the Jewish people did not have any fundamental human rights. They were abused, tortured, and forced to work, and two thirds of the Jewish were killed in the

## PROTECTING HUMAN RIGHTS

Holocaust. During the Holocaust, the Jewish women, children, old people, and people with disabilities were segregated (Taylor, 2014). Another historical incident is Japan's attack on Nanjing, China. Japan conducted aerial attacks over Nanjing. Japanese soldiers killed Chinese farmers to obtain food. Moreover, they sexually assaulted many Chinese women (The Rape of Nanking Massacre, n.d.).

### **The Causes of Bombing**

There seem to have been several objectives for the United States to drop nuclear bombs on Hiroshima and Nagasaki. One reason was to end the war with Japan and save the lives of Americans because thousands of American troops would be lost otherwise (A&E Networks, 2009). Another theory is that the U.S. wanted show the power of new mass destruction weapons to the Soviet Union to be superior after the war. Also, the U.S. thought that the enormous expenses used for the atomic bombs should be justified. According to the conference at Hyde Park, it was announced that the U.S. would keep using nuclear weapons until Japan would surrender (National Archives and Records Administration, n.d.).

### **Psychological Reasons for Attacking Others**

When people attack others, there are some psychological reasons. One reason is to raise their social status. Our identity is developed through comparing ourselves with others. If we can place ourselves higher in terms of status, we can find ourselves more important and have a greater sense of control (Straker, 2008). Another reason is to defend ourselves. When we are under attack, we may attack others as a method to defend ourselves (Straker, 2008).

Explaining the relationship between fear and act of attacking others, Shakyamuni said, "All human being did not take up arms in fear of the opponents, but rather were filled with fear

the moment they took up arms” (Ikeda, 2017). This suggests that if there is no weapon in the world, the fear which leads people to attack others would not be created.

### **Research Questions**

Based on the literature review, three research questions were made:

1. In wartime, what happens to human rights?
2. What hateful thought pervade our current society?
3. How can we transform hateful thoughts and protect people's human rights?

Regarding the first question, we wondered why people cannot control their hateful thoughts and attack others. There were many incidents like Holocaust which violated human rights, so we planned to find out what happened to the human rights and what made people violate human rights and attack others. As for the second question, we researched whether there is any hateful thought in our lives and why we have such thoughts. Lastly, we sought ways to transform hateful thoughts to protect human rights. If we can find a way to transform hateful thoughts, it will help nuclear power countries dispose nuclear weapons and protect people's human rights.

### **Methodology**

In fall 2017, interviews were conducted in order to find the answers of the three research questions.

First, an oral interview was conducted in November 2017 to Ms. Noriko Nakatani and to Ms. Reiko Sumii, whose mother experienced nuclear bombing in Hiroshima. They are the members of the committee to promote peace and human rights in Katano city, Osaka. They were selected as interviewees as they shared their wartime experiences in the booklets published by

## PROTECTING HUMAN RIGHTS

Katano city. The interviewees were asked how they overcame their emotional struggles during and after the wartime. The interview questions were made based on their war time experiences.

Second, in order to understand the effect of war time experiences on the notion of human rights and to know that what is important not to repeat such a wholesale slaughter, an email interview was conducted to Sophia University Professor Shigeko Inoue, who specializes in Western History especially Holocaust.

Third, an oral interview was conducted to Mr. Yoshifumi Nakatani, who is a head of a hibakusha group in Sakai, Osaka, and three members of the group. They were asked about their understanding of human rights concept during war and their emotional struggles during and after the bombing.

Fourth, in order to learn more about the war-time psychology, an email interview was conducted to Dr. Yoshihisa Hamamura, psychologist and professor at the Defense Academy.

These interviews were conducted in Japanese, and the interview questions are listed in the Appendix.

## Results

To find the answers for research questions, interviews were conducted to a military psychologist, a professor majoring in the history of Holocaust, hibakusha and some members working in hibakusha NGO.

### Human Rights in War Time

In the interview with an NGO called Sakai Genbaku Higaisha no Kai, Ms. Takubo, one of the members of the NGO, shared her experience and said, “We were desperate to live during the wartime, so we couldn’t think about human rights. In war time, there was nothing we can call

## PROTECTING HUMAN RIGHTS

human rights.” Another member, Mr. Ando stated that “It was proud for people to fight and die for Japan as a part of weapons in war time, and the government controlled a lot of information about war, so we could not understand whether the situation of war is good or not. The concept of human rights was created after the constitution of Japan had been determined in the first place.” Considering the wartime situation from the current view point, we can clearly say that human rights were ignored during the wartime.

### **Psychological Conditions in War Time**

Mr. Hamamura answered, “According to some research, the only two percent of wartime soldiers had low resistance towards murdering. Soldiers are also human beings, so they cannot unconditionally kill their opponents. However, their resistance towards killing is lowered when they experience anger due to the death of their friends and senior officers.” Mr. Hamamura also shared that the psychological resistance towards killing is also lowered by the use of derogatory words, which encourage people to regard others inferior to them.

### **Overcoming Hateful Thoughts**

Mr. Nakatani, president of the NGO Sakai Hibakusha no Kai said “We did not really hate enemies during wartime and even now.” Ms. Takahashi, member of the NGO, said, “We have a sense of mission never to repeat the war.” According to Ms. Inoue, it is important to have the belief that everybody is equal and the consideration to other groups in order to prevent massacre. The hibakusha interviewees also shared that “We need youth who can stand up. One youth can talk to family. And the movement further extends from family to community. This is important because it will lead to a big movement for peace.”

### Discussion

Through the interview with the members of Sakai Genbaku Higaisha no Kai, we learned that human rights were ignored during wartime and realized that the war itself is the violation of human rights. Therefore, the use of nuclear weapons, which can lead to war, is the violation of human rights. We believe that if people can really understand the real concept of human rights and realize the importance of dignity of life, we can prevent wars. In other words, realization of the dignity of life is important to prevent the use of nuclear weapons. Therefore, we believe people should deepen their understanding of human rights. We need to protect our human rights by saying “no” to war and the use of nuclear weapons.

We also learned from the interviews that Japanese people did not have hatred towards the enemies during wartime. Before interviewing them, we thought hibakusha must have had hatred towards people of their enemy countries. However, the interview revealed that people were too desperate to live in wartime and did not have room in their heart to have grudge towards the enemy.

In regards to the nature of massacre, we learned that the death of close people lowers the resistance towards murdering someone, and there is no brake in killing others when massacre occurs. We also learned that most soldiers initially feel resistant towards killing others, but anger and the use of derogatory words encourage them to attack other people. In today’s world, there are derogatory words to disrespect others. We thought these disrespectful words might encourage the violation of human rights and lead to further tragedy. We believe that if we people can truly recognize the importance of life and learn how to transform their anger, we can nurture a heart that would not allow the use of nuclear weapons.

### Proposals

Based on the results and our discussion, we would like to propose that junior high school and high school especially in Japan hold a “Human Rights Day” and invite parents to the school in order to raise students and their parents’ awareness about human rights. As the hibakusha group shared their expectation on the young people, we thought raising the awareness of junior high and high school students is important. At the same time, we also hope to include parents as they are the generation that is directly raising the future members of the society. On that day, school holds two main events: speech contest and seminar.

Firstly, students write an essay on human rights and nuclear abolition and present it to their parents. In the preparation process, students can research and refine their ideas about human rights and the history of nuclear bombing. Some students who made a good speech will make a speech on Human Rights Day. In addition, when students give a speech, they need to put their emotion into their words, which allows them to convey their messages effectively to their parents and other students. By giving a speech in front of many people, students can gain more confidence and become more passionate towards the issue. The presentation of essay will increase students’ motivation towards nuclear abolition. If the speech contest is in English, students can share their ideas with even more people. Considering the difficulty of making a speech in a second language, we would like to suggest that junior high school students make speech in Japanese and high school students make speech in English. Students can also share their speech at open campus and they can raise more people’s awareness about nuclear abolition and human rights.

Secondly, we suggest holding a seminar in order to raise the awareness of human rights. As the use derogatory of words could might lead to human rights violation, we want to prevent

## PROTECTING HUMAN RIGHTS

this by changing our language. In this seminar, students and parents discuss the derogatory words in their society and ways to change their language to speak respectfully. The use of respectful language will lead to human rights protection, which will be the starting point of nuclear abolition movement. This dialogue may be a small step, but we believe this is an important step towards nuclear abolition.

### **Limitations**

There are some limitations in our proposal. First, this proposal is not applicable once a war breaks out. Our proposal is to prevent human rights violation. According to hibakusha's experience, they could not think about human rights during wartime. Therefore, we are not sure if people can think about human rights once a war breaks out. Second, we are not sure whether this proposal is effective or not in other countries since we interviewed only Japanese people. We need more opinions and research about derogatory words in today's society to produce a proposal that is more applicable in other contexts.

### **Conclusion**

When we think about the issues of nuclear weapons, we often lose our confidence because what we can do as high school students seems to be limited. However, through our research, we realized the importance of learning about human rights. By learning about human rights deeply in literature and through interviews, we were able to deepen our understanding of the dignity of life and learn that possessing nuclear weapons is the violation of human rights. We also learned that nuclear issues are close to us. We believe that more people need to raise their

## PROTECTING HUMAN RIGHTS

awareness about human rights. We hope our proposal can be a certain step forward to nuclear abolition.

References

- A&E Newtworks. (2009). *Atomic bomb dropped on Hiroshima*. Retrieved from <http://www.history.com/this-day-in-history/atomic-bomb-dropped-on-hiroshima>
- Hibakusha Testimony Library. (n.d.). Hiroshima Peace voice [Hibakusha Testimony Library (trans. by author) ]. Retrieved from <http://www.pv-hiroshima-soka.jp/activity/hibakusha/>
- History Extra. (2015, August 6). Was the US justified in dropping atomic bombs on Hiroshima and Nagasaki during the Second World War? Retrieved from <http://www.historyextra.com/feature/second-world-war/was-us-justified-dropping-atomic-bombs-hiroshima-and-nagasaki-during-second>
- Human Rights Now. (2017, June 14). Human rights now calls for the total elimination of nuclear weapons. Retrieved from <http://hrn.or.jp/eng/wp-content/uploads/2017/06/Nuclear-Weapon-Ban-Short-Statement-1.pdf>
- Ikeda, D. (2017, January 26). Peace proposal. Retrieved from <http://www.daisakuikeda.org/assets/files/peaceproposal2017.pdf>
- Josei Toda Website Committee. (n.d.). Declaration calling for the abolition of nuclear weapons. Retrieved from <http://www.joseitoda.org/vision/declaration>
- Koehler, R. (2016, January 8). Taking on the nuclear goliath. Retrieved from <https://www.laprogressive.com/nuclear-goliath/>
- National Archives and Records Administration (n.d.). Nagasaki no hibakusya gaiyo to sishosha no kazu [Overview of bomb damage in Nagasaki and the number of casualties (trans. by author)]. Retrieved from <http://www.nagasaki-heiwa.org/n5/A5.html>

## PROTECTING HUMAN RIGHTS

Obama, B. (2009, April 5). Remarks by President Barack Obama. Retrieved from

<https://obamawhitehouse.archives.gov/the-press-office/remarks-president-barack-obama-prague-delivered>

Office of the United Nations High Commissioner for Human Rights. (n.d.). What are human rights?. Retrieved from [http://www.ohchr.org/EN/Issues/Pages/](http://www.ohchr.org/EN/Issues/Pages/WhatareHumanRights.aspx)

[WhatareHumanRights.aspx](http://www.ohchr.org/EN/Issues/Pages/WhatareHumanRights.aspx)

Starker, D. (n.d.). Changing minds. Retrieved from [http://changingminds.org/explanations/behaviors/blame/why\\_blame\\_others.htm](http://changingminds.org/explanations/behaviors/blame/why_blame_others.htm)

Taylor, B. (2014, March 2). Human rights violations: The Holocaust. Retrieved from

<https://prezi.com/vfsickyrsm5t/human-rights-violations-the-holocaust/>

The Japan Council against Atomic and Hydrogen Bombs. (n.d.). Kakuheiki wo nakusu “hankaku

zemi” 21 genbaku touka, sono 2, Hiroshima e no genbaku touka [Abolishing nuclear

weapons, “Anti-nuclear seminar” 21, nuclear bombing, part 2, nuclear bombing to

Hiroshima (trans. by the author)]. Retrieved from [http://www.antiatom.org/GSKY/](http://www.antiatom.org/GSKY/jp/Rcrd/Basics/jsawa-21.htm)

[jp/Rcrd/Basics/jsawa-21.htm](http://www.antiatom.org/GSKY/jp/Rcrd/Basics/jsawa-21.htm)

The Rape of Nanking or Nanjing Massacre (1937). Retrieved from [http://www.pacificwar.](http://www.pacificwar.org.au/JapWarCrimes/TenWarCrimes/Rape_Nanking.html)

[org.au/JapWarCrimes/TenWarCrimes/Rape\\_Nanking.html](http://www.pacificwar.org.au/JapWarCrimes/TenWarCrimes/Rape_Nanking.html)

Appendix

A. Interview questions to Ms. Sumii and Mr. Nakatani

1. In current wars, how human rights (what kind of human rights) are violated?  
How did people view enemy countries in the war time and current society ?
2. How did you overcome your sadness, anger?
3. How do you think about nuclear deterrence theory?
4. What do high school students need now?
5. Do you think that having nuclear weapons is violation of human rights even it is not used?

B. Interview questions to Ms. Inoue

1. How were Jewish people's human rights violated psychologically and physically?
2. What are the similarities of the nature of the event Holocaust and Hiroshima and Nagasaki in similar is the relationships and differences between holocaust and bombing on Hiroshima and Nagasaki?
3. What was the psychological state of the victims of Holocaust and the Nazis? How did they view human rights? What is important for us, ordinary people, to know/understand if we do not want to cause any further wholesale slaughter?

C. Interview questions to Ms. Sumii and Mr. Nakatani

1. In current wars, how human rights (what kind of human rights) are violated?  
How did people view enemy countries in the war time and current society ?
2. How did you overcome your sadness, anger?

## PROTECTING HUMAN RIGHTS

3. How do you think about nuclear deterrence theory?
4. What do high school students need now?
5. Do you think that having nuclear weapons is violation of human rights even it is not used?

### D. Interview questions to Ms. Inoue

1. How were Jewish people's human rights violated psychologically and physically?
2. What are the similarities of the nature of the event Holocaust and Hiroshima and Nagasaki in similar is the relationships and differences between holocaust and bombing on Hiroshima and Nagasaki?
3. What was the psychological state of the victims of Holocaust and the Nazis? How did they view human rights? What is important for us, ordinary people, to know/understand if we do not want to cause any further wholesale slaughter?

ラーニングクラスター2017 年  
ハイスクール平和提言

**The Role of Religion for Nuclear Abolition**  
核廃絶における宗教の役割

平和グループ

43 期 北村旭、本房由香

44 期 来須航世、庄司清美

2017 年の平和提言の中で、池田大作先生は、市民社会は、国境を越え全ての人々に深く関係する問題を対処する上でとても重要な役割を果たすことができると強調されました。そして、宗教は人々の考えや振る舞いに対し大きな影響力をもつので、宗教は核廃絶に関する人々の思想にも影響をもたらすだろうとの考えから、焦点を世界三大宗教であるキリスト教、イスラム教、仏教に絞り、提言作成は始まりました。本論文では、インターネットや書籍などを用いながら宗教の核廃絶に関する思想や活動を調べました。宗教のそれぞれの思想によっては様々な解釈がありその中には核兵器を肯定するものや否定するものがあるということを学びました。そこで私たちは各宗教が核廃絶を果たすにはどう貢献できるのかを探るために次の三つの設問を考えました。

1. 各宗教に共通の考えはあるか。また、それらの考えは核廃絶に向けてどのような役割を果たしているか？
2. 核廃絶に向け、宗教的にはどのような活動があるか。どのように各宗教どうしが互いに協力できるか？
3. 核兵器の使用を正当化する思想はあるか？

私たちはこれらの設問を解決するために、創価学会インターナショナルと異宗教間で構成されている組織の WCRP にメールによるインタビューを行いました。加えて、平和研究者と共にビデオ会議を開きました。これらのインタビューとビデオ会議を通して、設問一に関して、宗教間の共通点を見つけました。それは、宗教は人類の幸福と平和のために存在しているということと、宗教は生命の尊厳を追求しているということです。次に設問二に関して、署名活動を行ったり、展示会や会議を開催するなど、様々な宗教が核廃絶に向けて協力して活動していることがわかりました。設問三は、答えを導くことができませんでした。これらの調査結果に基づき、二つのことを結論付けました。一つ目は、宗教的思想は生命の尊厳を守ることにより核兵器の非人道性を訴えているということです。二つ目は、異宗教間の団結は核兵器のない平和な世界への大きな原動力になるということです。私たちは、一層団結力を深めることにより、よりたくさんの人々を核廃絶への取り組みに巻き込んでいくことができるのではないかと考えました。このことから、私たちは二つのことを提案します。一つ目は、宗教間で核廃絶に向けたフォーラムを開催することです。このフォーラムでは、各宗教がそれぞれの活動を共有し、どうすれば核廃絶へのさらなる進歩ができるのかを議論をします。このフォーラムに基づき、展示会が催されます。この展示会は、各宗教の核廃絶への活動を紹介し、市民に協力を促すことを目的としています。二つ目は、モバイルアプリケーションの作成です。このアプリケーションの利用者は、核廃絶に向けた写真やニュース、活動を共有します。これにより、利用者である市民から最近の核廃絶に向けた活動を更新し、意識向上に貢献します。これらの提案は私たち高校生だけでは達成することは難しいですが、提案するだけでは意味が無く、私たちにも自らが行動を起こす責任があります。よって、どんな小さなことであっても身近な足元から勇気を出し行動を開始し、核兵器なき世界の実現に一步でも近付けるように努力します。私たちの提言を読むことにより、より多くの人々が地球市民の一員として核廃絶を成し遂げることの重要性に気付いていただけることを願います。

### **The Role of Religion for Nuclear Abolition**

In the 2017 Peace Proposal written by Dr. Daisaku Ikeda, he emphasized that "civil society can play a vital role in clarifying and giving a human face to problems that are deeply relevant to all people across national borders but would otherwise only be addressed within the context of national policy. This in turn can encourage concerted action on a global scale." (Ikeda, 2017) . The reason why we focused on religion was that religion has the power to influence the thinking of civil society. We conducted research on various levels to explore key aspects in which religion can function towards a nuclear free world. Since there are many religions beyond the capability of the research, we chose three major religions in the world: Christianity, Islam, and Buddhism.

### **Literature Review**

#### **Religious Writings**

Religious writings strongly affects believers' thoughts and actions. Religious writings express the original thoughts, but interpretation depends on each believer or the group that the believer belongs to, and affects their actions accordingly. Through deepening own understanding of religious writings of each religion, we found the thoughts that might be interpreted to allow to possess, use nuclear weapons, or abolish them. Moreover, the additional research purpose was to clarify common thoughts about nuclear weapons.

**Bible.** The Bible is a collection of principles for Christianity. According to Dr. Johan Galtung, an expert of peace research, a well-known thought in the Bible called "Neighborly love" can be interpreted to encourage the possession of nuclear powers while others perceive it for banning of nuclear weapons. Neighborly love means that "Love your neighbor as yourself". Therefore, this concept tells Christians that they should protect their neighbors as themselves. If people apply this idea to nuclear issues, this may mean that they should not use nuclear weapons. However, other people have a tendency to separate foreigners from

themselves, so they may interpret that it is right to hurt people who are not their neighbors, including the use of nuclear weapons, to protect their neighbors. As explained above, the Bible has both positive and negative thoughts towards nuclear abolition (Tsuchikado 2016).

**Quran.** There are concepts of deterrence and of retaliation in the Quran. One of them says, “prepare against them whatever forces you (believers) can master, including warhorses, to frighten the enemies of God and of yours.” (-8:60) These God’s words can be misused by some people to possess nuclear weapons to protect themselves. By possessing nuclear weapons, there will be tension that will be created by those two countries who may be afraid of being attacked, just like deterrence theory mentions. Also, there is a thought in Quran that “[i]f anyone commits aggression against you, attack him as he attacked you, but be mindful of God.” (-2:194) This thought may allow people to fight back with equal amount of forces, so the country that is attacked by nuclear weapons can be allowed to use nuclear weapons in retaliation, but they have to follow their God’s teachings. Thus, as one perspective, Quran seems to allow the use of nuclear weapons. On the other hand, there is a thought in Quran that “[h]e (of the enemy) who has reached puberty should be killed, but he who has not should be spared ... Spare the minors—the youth ... The Apostle of God prohibited killing of women ... nor should you mutilate or kill children, women, or old men” (Abdallah, n.d.). According to this part of the Quran, Islam does not allow people to kill innocent people, so they may agree with nuclear abolition because nuclear weapons can kill millions of innocent people (Abdallah, n.d.).

**Writings of Nichiren Daishonin.** As for Buddhism, we research about the Writing of Nichiren Daishonin (WND) which is the original principle of the Nichiren school. Nichiren is the founder of the Nichiren school of Buddhism in Japan. According to WND, it says that “Both good and evil are inherent even in those at the highest stage of perfect enlightenment.” - (WND I: 166) It can be interpreted that everyone has both good and evil thought. Even if people hope for humans’ happiness, they may have the mind which is against it. It can be

considered that good mind creates good results, but evil mind creates evil results. When we think about nuclear weapons at this point, it can be thought that nuclear weapons are generated by people's fear and distrust.

### **Religious Activities toward Nuclear Abolition**

**World Council of Churches.** The organization called World Council of Churches (WCC) consists of 348 member churches, and it represents over 500 million Christians. Christians in this organization are mostly Protestants and Eastern Orthodox members. WCC has activities called Pilgrimage of Justice and Peace. They went to Hiroshima as part of this activity.

**Rev. Olav Fykse Tveit**, General Secretary of the WCC, meets religious leaders and government officials to abolish nuclear weapons. He stated that Hiroshima and Nagasaki were just the astonishing events and that, "we resolve to continue to press mightily for the outlawing and elimination of these weapons. The members of our delegation represent the whole fellowship of churches in the WCC, working and praying for a world without nuclear weapons." By visiting Hiroshima on 5-7 August and Nagasaki on 7-9 August 2015, the members of WCC met the *Hibakusha* and learned the miserable situations caused by the nuclear bombs. We thought that this particular activity played important role because learning about the horrible history caused by human beings through visiting Hiroshima can inspire people to take further actions for nuclear abolition (World Council of Churches 2017).

**Islam.** Through our research, we tried to find activities which are run by Islamic organizations, but we could not find them as for now. Instead, we found a person who is the Muslim and supports nuclear abolition. Dr. Muzammil Siddiqi, who is the president of The Islamic Society of North America and the Religious Affairs Committee of the Muslim Students Association in the United States, declared that "[w]e must say to ourselves first and then to the world that we want a total and universal ban on the possession and production of nuclear weapons. All countries, starting with those that have the largest amount of nuclear

## THE ROLE OF RELIGION FOR NUCLEAR ABOLITION

weapons, should destroy these weapons. There should be a total ban on their production and testing. Nuclear technology should be used only for humanitarian and peaceful purposes.” He says that nuclear weapons should be banned around the world for human and environment. (Muslim Statement, n.d.).

**Buddhism: Soka Gakkai International (SGI).** SGI's activities for nuclear abolition begun since second Soka Gakkai president Josei Toda published the Declaration for the Prohibition of Atomic and Hydrogen Bombs. The SGI has been promoting nuclear abolition and establishment of a peaceful culture through initiatives including the following: Petition Drives, surveys, and exhibitions. SGI participated in the Abolition 2000 International Petition and collected more than 12 million signatures, mainly in Japan. These signatures were submitted to the Preparatory Committee of the Treaty on the Nonproliferation of Nuclear Weapons (NPT PrepCom) in 1998. Also, from January to March 2010, teenage members of SGI in six countries: Japan, Korea, the Philippines, New Zealand, the USA and the UK conducted surveys of their fellow teenaged attitudes toward nuclear weapons for the purpose of promoting public opinions toward nuclear abolitions. Ultimately, 4,362 interview surveys were conducted. Furthermore, exhibitions named Everything You Treasure -For a World Free From Nuclear Weapons was held in August 2012. It examined the issues of nuclear weapons from 12 different aspects such as humanitarian, environmental, medical, and economic. This exhibition was built with collaboration of SGI and the International Campaign to Abolish Nuclear Weapons (ICAN) (Soka Gakkai International 2015).

### **Interfaith Activities**

**Religion for Peace.** Religion for Peace is also known as WCRP. WCRP is consisted of various religions' leaders and focuses on inhumanity of nuclear weapons by the world's largest and most representative multi-religious coalition which advances common actions cooperating with civil society, non-governmental organizations (NGOs), and governments. WCRP leads a positive vision of peace as common security which is based on

## THE ROLE OF RELIGION FOR NUCLEAR ABOLITION

widely shared moral principles: the central unity of human family, the equality, and dignity of all human beings. According to these principles, common security grasps our essential duty to consider one another and to understand the deep interdependence of the world's people.

WCRP encourages a construction of security created by a mutual trust between people based on dialogues (World Conference of Religion for Peace 2017), and participated in the movement of Hibakusha International Signatures". Also, WCRP urges enactment of a treaty having a legally binding towards nuclear abolition and created the handbook which is called *Nuclear Ban Treaty Negotiation Handbook* by collaborating with ICAN. In addition, this organization has prioritized reducing the necessity and supply of weapons in the world. To the end, WCRP contributes to eradicate nuclear and conventional weapons, to educate citizens about the human costs of militarization, and to alter military expenditures toward human advancement. To tackle with the issues of nuclear weapons, WCRP affords resources to policymakers, advance dialogues, and coordinate advocacy efforts. For instance, WCRP developed a multi-religious resource guide to nuclear disarmament designed to inform and call up people of belief.

### **Tokyo Fieldwork**

From July 17th to 19th, 20 students of Kansai Soka High school Learning Cluster visited the institutions: Soka University, the Ministry of the Environment, the International Atomic Energy Agency (IAEA), The National Institute for Environmental Studies, Japan Aerospace Exploration Agency that are dealing with international affairs. We also received one lecture from Dr. Olivier Urbain about the Min-On Concert Association, promoting "international cultural exchange and peace by introducing music and performing arts from every country around the world"(Min-on Concert Association 2017). During the fieldwork, we had several opportunities to give presentation about our research and the experts at the institutions gave us feedback on our presentation and lectures about their work.

## THE ROLE OF RELIGION FOR NUCLEAR ABOLITION

**Maria Guajardo (Deputy Vice-President, Soka University).** She told us that listening to others, having courage to express opinions, and many skills like leadership and listening to others are needed for becoming global citizens by joining class activities about how to tackle the problem during her lecture, and learned the requirements to become a global leader. Through her lecture, we realized that we already obtained those skills to become a global leader. She emphasized the importance of having dialogues to us. In the end, she told us that we already are considered as global citizens because we potentially have solutions for global issues within us so that communication to find the solutions are crucial.

**IAEA (International Atomic Energy Agency) Office in Japan.** One of IAEA staff told us “not to be pessimistic about nuclear weapons. Actually I believe in Catholic, but I have never thought that I can kill the people who are not neighbors to protect myself, like ‘Neighborly love’”. From this opportunity, we learned that even though people believe in same religions, interpretations vary depending on each people.

**Olivier Urbain (Director of Min-on Music Research Institute).** We learned how people can work together by many methods even we differ in many ways. One of them that he explained was through music, but the same thing should be said about religion. There are interfaith organizations to abolish nuclear weapons and people work together to make that a reality. We also learned how music can be used wrongly, and people caused genocides. We had made the connection with the religion about 9-11 and ISIS. Religion can be an excuse for killing people, and so does music, even though they are peaceful ways to change the world. There is always a good way and a bad way to use tools that can affect people heavily.

### **Hiroshima Fieldwork**

From August 5 to August 7, Hiroshima Field Work was held as part of the SGH program, and this was held separately with Tokyo Field Work. Twenty students were selected by lottery from all the high school students, and five Learning Cluster members also participated in this field work. Students participated in the Peace Forum held in Hiroshima

## THE ROLE OF RELIGION FOR NUCLEAR ABOLITION

Jogakuin. In this forum, we discussed what we can do as citizens to spread what NGOs are doing for nuclear abolition to the world. Through the discussion, we could learn that NGOs are conducting various ways to realize the peaceful world without threats of weapons and conflicts.

I conducted interviews in Hiroshima for researching foreign people's awareness about nuclear abolition. People whom I interviewed practice Catholicism or Protestantism. When I asked them what they can do based on their practice to contribute to nuclear abolition, the responses were the same, which was that everyone needs to understand and accept each other's through having dialogue with others. Through interviewing, I realized that although there are differences in beliefs, people can create solidarity for the world without nuclear weapons through dialogue.

### **Additional Readings**

***Choose Peace.*** We read the dialogue between Johan Galtung and Dr. Ikeda. In the dialogue, they have mentioned that "Buddhism seeks to combine a realistic insight into the contradictions of human life with an approach that has stood the test of time: meditation and dialogue for the sake of mutual improvement." (Galtung 11) Then, they discussed two types of dialogues: the outer dialogue and the inner dialogue. They said, "The outer dialogue means that two or more spirits help each other improve their joint karma, thus transcending any idea of predetermination. Because it entails scrutinizing assumptions, laying them bare for others to see, the inner dialogue is equally important. Ideally, inner dialogue and outer dialogues should inspire each other" (Galtung 5). As a conclusion, they said that Buddhism and peace become two sides of the same coin and are accessible to all.

***The Wisdom of Tolerance: A Philosophy of Generosity and Peace.*** This book is the dialogue between Abdurrahman Wahid and Daisaku Ikeda. Mr. Wahid said that a moral sense in Islam is having empathy for others. As for religious role, Dr. Ikeda said that even

## THE ROLE OF RELIGION FOR NUCLEAR ABOLITION

though religious thoughts are different among religions, they can collaborate with each other toward the human's shared goal: peace. Also, both Mr. Wahid and Dr. Ikeda agreed with the importance of solidarity; it does not matter what kind of problems people had and may face, but it is important to seek a way to collaborate with each other for peace.

### Research Questions

Based on our literature, we created the following three research questions:

**Research Question 1:** “What are the common ideas in religion and how do they play a role for nuclear abolition?”

Through researching the religious perspectives, we realized that religious thoughts are complex and it is difficult to generalize them, but they have impacts on people's way of thinking. Therefore, we thought that we needed to know more about religions. In today's world, There are various ideas toward nuclear abolition. Some people believe that nuclear weapons should be banned, but others support the possession of nuclear weapons. We believed that finding commonality is important to achieve nuclear abolition. If we are able to find commonalities of religious thought, that will lead to make progress toward disarmament of nuclear weapons.

**Research Question 2:** “What are some religious activities towards nuclear abolition? How do religions cooperate with each other?”

We researched about religious activities for nuclear abolition, and we believed that there are more activities which are led by religions. Also, we wanted to find more organizations in which various religions are cooperating for nuclear abolition to find many examples of how religion take a big part in uniting people with different culture and philosophies. We thought that people have a limit to abolish nuclear weapon politically, so changing the mindset and thoughts of people are important to work together. Our goal was to

## THE ROLE OF RELIGION FOR NUCLEAR ABOLITION

find a solution to collaborate among various religions for abolishing nuclear weapons so that many people can be involved in religions' activities. As a result, the collaboration can be great momentum for the peaceful world without nuclear weapons.

**Research Question 3:** “Are there any religious thoughts that can be misused for the use of nuclear weapons?”

Our research topic is “the role of religion for nuclear abolition”. We sought a way to achieve nuclear abolition from the religious perspectives. We thought that there may be not only the thoughts which support abolishment, but also some thoughts which can be misused by people to allow nuclear weapons. For example, ISIS(Islamic State) killed many innocent people by believing some ways to see the particular teachings, and they made that an excuse for doing such a violent movement even though Islam’s goal is to have world peace. Positive thoughts can contribute for nuclear abolition, but we believed that negative thought can also play a role for abolishment. We thought knowing negative side led us to find what makes abolishment difficult. If we understand that, we can think of ways to respect, but when we discussed about other perspective to seek for the right answer that will benefit the whole world. We wanted to find the thoughts for both nuclear abolishment and armament.

### Methodology

From November 3rd to December 2nd in 2017, interviews via e-mails were conducted to Soka Gakkai International (SGI), a peace researcher, and World Conference on Religion for Peace (WCRP). As for the peace researcher, we introduced as the anonymous researcher in this peace proposal based on the researcher’s request. For SGI, there were four questions that relates to the cooperation of religions to achieve nuclear abolition for the following reasons. One reason was to find ways for people to cooperate with others who believe in different religions to achieve nuclear abolition. The other reason was to find the religious commonality. Next, the interview to a peace researcher was consisted of four questions that

possibly answered the questions of this research. The purpose for asking these questions was to find another way to think critically to deepen our research that we have done. Finally, the interview via website to World Conference on Religion for Peace (WCRP) was consisted of three questions. The purpose for asking these questions was to find out the interfaith activities between different religions and get to know the common thoughts among different religions. All of the interview questions are listed in appendix.

### Results

#### Peace Researcher (Anonymous upon request)

We interviewed with the peace researcher, and we asked how people who have different backgrounds can collaborate with each other. The researcher said that dialogue is the way to accomplish it. In order to support his idea, he introduced Dr. Olivier Urbain's book. In *Daisaku Ikeda's Philosophy of Peace*, Dr. Urbain wrote, "[d]ialogue is a method for human beings to explore a topic or come to a joint solution, using language." (Urbain, 2010). Also, he wrote about dialogue based on Dr. Ikeda's word. "Ikeda's main purpose in using dialogue is to bring out the best in self and other, to let people's common humanity shine despite - or rather through - differences in backgrounds, lifestyles and worldviews" (Urbain, 2010). Also, according to this book, people can gain shared views through having a dialogue, and dialogue is "a process of creating something of new and positive value" (Urbain, 2010), the researcher introduced the dialogue between Dr. Ikeda and Dr. Majid Tehranian. In this dialogue, they pointed out, "Sincerity and open-mindedness on both sides are indispensable for genuine dialogue." (Urbain, 2010). By introducing this book, the researcher explained that it is important to have respect for others.

### **World Conference on Religion for Peace (WCRP)**

The first question was “How does religious thought affect people’s thought or behavior?”

WCRP agreed that religious thought affect people’ lives and the most highlighted part is that “it is said that existence of religion is for peace.”

Second question was “Are there any common thoughts among religions toward nuclear disarmament?” WCRP issued the statement that “We, who are representing each religion, vow to take actions by cooperating each other based on the shared morality and ethic.” WCRP explained that there is the belief of dignity of life for all humankind while nuclear weapons can kill a large number of people.

Our third question was “How were religious thoughts reflected on the handbook which WCRP made with ICAN for adoption of nuclear ban treaty?” At the beginning of this handbook, one of the religious leaders wrote about “Hyoukamuyou” whose meaning is uselessness of weapons and military.

### **Discussion**

We learned that religious thoughts can contribute to protecting the dignity of life. Possession of nuclear weapons may cause sacrifice of great number of people. So, it violates dignity of life. On the other hand, many religions call for nuclear abolition because nuclear abolition can secure all of the lives. Therefore, human dignity can be respected.

In addition, we realized that cooperation among religions organizations can become a great momentum for peace. Since there are many religious activities for nuclear abolition, by collaborating among religious organizations, these organizations can involve more citizens in their activities for nuclear abolition, so collaboration is the key to move forward for peace.

Also, we found that even though religion’s philosophies are different, for many of religions, they share a common objective, which is to obtain people’s happiness and protect human dignity.

## THE ROLE OF RELIGION FOR NUCLEAR ABOLITION

We understood how there are many religious activities by researching about our two research questions. However, the problem is that people are not familiar with activities to participate in any of them. These activities will create a strong momentum for people to learn about nuclear abolition, but if people do not know, people cannot be participated in, and many activities will not be able to show the potential effect. We thought that it is important to raise awareness toward nuclear issues and activities. Also, each group cannot collaborate with each other if groups do not know other activities. If they will be able to do so, the activities can broaden the possibilities of things that they can do.

### **Proposal**

#### **Holding a Forum**

Our first proposal is to hold a forum among religions. In this forum, religious organizations will share their activities for nuclear abolition and discuss how to make progress toward nuclear abolition. By doing so, organizations can get to know each other's activity. This forum is aiming to collaborate among religious organizations. Based on this forum, an exhibition will be organized for citizens to promote taking actions. For example, religious organizations will make posters or give citizens pamphlets about their beliefs and activities for nuclear abolition. Through holding a forum and a exhibition, we assumed that organizations can collaborate with each other and activities will be the great momentum for peace, and more people can be involved in activities by knowing the existence of activities.

#### **Creating an Application**

Second proposal is to create the mobile application which focuses on only nuclear abolition. Users will be able to share activities and news which relate to nuclear issues and they can see all of the posts whenever it is and wherever they are. Through this application, people's awareness toward the nuclear abolition will be raised, and also activities that include religious activities will be known by more people. The biggest benefit of this application is

that users can update about the current situation toward nuclear abolition each other. In addition, it is not always true that followers know all of the activities that their religions do, so it will be easier for them to get to know these activities they can participate in.

### **Conclusion**

On July 7, 2017, Nuclear Ban Treaty was adopted, and the world gradually moves forward toward nuclear abolition. However, some countries still have not been involved in this movement. The issue of nuclear disarmament is complicated and it needs various aspects to tackle with it. However, we believe that the world must protect dignity of life as priority. As we researched about religions, we found that many religions seek human dignity and peace. Based on these beliefs, religious organizations have been taking actions toward nuclear abolition. Despite that, it is fact that many activities are still independent, and many people do not know about activities. They are indifferent about the issues even. In order to change this situation and to raise people's awareness, we suggested two proposals. First one is to hold a fair to spread activities and let organizations collaborate with each other. Another one is to create an application to let people update current news and activities each other and to raise awareness toward nuclear issues. The journey for nuclear free world has just begun. Even though our step seems too small, we believe that everything starts from one small step. It is now or never. We will keep advancing toward the world where everyone can live freely with dignity of life.

### Reference

- Abdallah O. (n.d.). Islam: The True Religion of God Almighty. Retrieved from [http://www.answering-christianity.com/bomb\\_muslims.htm](http://www.answering-christianity.com/bomb_muslims.htm).
- Ikeda, D. (2017). Peace Proposal: The Global Solidarity of Youth: Ushering In a New Era of Hope. Retrieved from <http://www.sgi.org/content/files/about-us/president-ikedas-proposals/2017-peace-proposal.pdf>.
- Japan Confederation of A- and H-Bomb Sufferers Organizations. (n.d.). Hibakusha Appeal. Retrieved from <http://hibakusha-appeal.net/about-us.html>.
- Domon, M. (2016). Nuclear Justification and Christianity. Retrieved from <http://www.christiantoday.co.jp/articles/22144/20160927/jscs-3.htm>.
- Greenz. (2015). Tetora Tanizaki. Retrieved from [http://greenz.jp/2015/09/21/johan\\_galtung/](http://greenz.jp/2015/09/21/johan_galtung/).
- Interfaith Council for Peace and Justice. (n.d.) Muslim Statement on Nuclear Disarmament. Retrieved from <http://www.icpj.org/2006/muslim-statement-on-nuclear-disarmament/>.
- Ishida M. (2010). Good and Evil of Christianity. Retrieved from <http://web.ias.tokushima-u.ac.jp/shin-kokusai/philosophy/2010/0716ishida3.pdf>.
- Muslim Statement on Nuclear Disarmament. (n.d.). Retrieved from <http://www.icpj.org/2006/muslim-statement-on-nuclear-disarmament/>.
- Min-on Institute. (2017). About Min-On:Who We Are. Retrieved from <http://www.min-on.org/index.php/about-min-on/who-we-are>.
- Nakazawa, J. (2006, October 4). *Goodness and Love*. Retrieved from [http://hrr.ul.hirosaki-u.ac.jp/dspace/bitstream/10634/5799/1/HirogakuKiyo\\_43\\_1.pdf](http://hrr.ul.hirosaki-u.ac.jp/dspace/bitstream/10634/5799/1/HirogakuKiyo_43_1.pdf).
- Nichiren, D. (2003). The Writings of Nichiren Daishonin. Tokyo: Soka Gakkai.
- O'Brien, B. (2017). Evil in Buddhism. *ThoughtCo*. Retrieved from <https://www.thoughtco.com/buddhism-and-evil-449720>.

## THE ROLE OF RELIGION FOR NUCLEAR ABOLITION

Olivier, U. (2010). *Daisaku Ikeda's Philosophy of Peace*. London: I.B. Tauris & Co Ltd.

Religions for Peace. (2017). Vision & Mission. Retrieved from <https://rfp.org/learn/vision-mission/>

SGI Office of Public Information. (2013). Soka Gakkai International NGO Activity Report. Retrieved from <http://www.sgi.org/content/files/resources/ngo-resources/peace-disarmament/SGINGO-activity-report2013.pdf>.

Soka Gakkai International. (2015). Everything You Treasure-For a World Free From Nuclear Weapons. Retrieved from <http://www.sgi.org/in-focus/2012/eyt-world-free-nuclear-weapons.html>.

Stuart, J. (2017). The Concept of Evil in Islam. Retrieved from <http://peopleof.oureverydaylife.com/concept-evil-islam-3783.html>.

Sugiyama, G. *Proclamation of Welcoming a Nuclear Ban Treaty*. Retrieved from [http://saas01.netcommons.net/wcrp/htdocs/?action=common\\_download\\_main&upload\\_id=20](http://saas01.netcommons.net/wcrp/htdocs/?action=common_download_main&upload_id=20).

Tsuchikado, M. (2016). Justification of Nuclear Weapons and Logics of Christianity. Retrieved from <http://www.christiantoday.co.jp/articles/22144/20160927/jscs-3.htm>.

Van Hooser, T.C. (2017). Christianity Belief on Good & Evil. Retrieved from <http://peopleof.oureverydaylife.com/christianity-beliefs-good-evil-2926.html>

World Council of Churches. (2015). WCC Encourages Churches to Pray on Hiroshima Day. Retrieved from <https://www.oikoumene.org/en/press-centre/news/>

Wahid, A. & Ikeda, D. (2010). 平和の哲学 寛容の知恵 [*Dialogue of Civilizations on Tolerance and Peace*]. Tokyo: Ushio.

Galtung, J. & Ikeda, D. (1995). *Choose Peace*. London: Pluto Press.

### **Turkey's Role to End Hunger**

This year Kansai Soka High School initiated a MUN conference among all third year students. The theme for this year was “Constructing a Food Distribution System Aiming for Zero Hunger”. We found out that our country Turkey has abundant hazelnuts and many international airports. Furthermore, Turkey is very close to Africa, which is suffering from hunger. My research question was whether Turkey can help the suffering people in Africa by sending hazelnuts with airplanes. The production of hazelnuts in Turkey is ranked first in the world. On the other hand, there are overproduction issues as well. In addition, the current status of airplanes in Turkey are still insufficient but they are willing to expand. Thus, Turkey can help the country with hunger with airplanes and hazelnuts, which leads to decreasing hunger. I hope that people from all around the world understand the significance of hazelnuts for hunger and Turkey would raise social status. Turkey is a very nice country with plenty of food and inflation to end poverty. (168words)

## 1, 序論

関西創価高校では SGH(スーパー・グローバル・ハイスクール)の活動の一環として去年に引き続き高校三年生による学年模擬国連が行われた。これは 1 組から 8 組までを世界の各地方別に分け、さらにそのクラス内で割り振ったグループが各国の大使となって問題解決を進めていくものである。今回のテーマは『ゼロハンガーを目指す食料流通システムの構築』だ。

担当したトルコという国は、西アジアにあるアンカラを首都とした人口約 8000 万人の国である。欧州、中東、中央アジア、コーカサス地域の結節点という地政学的に重要な要衝に位置し、多角的な平和外交を基調としている。欧米との協調関係が基本姿勢であり、NATO, OECD, OSCE の加盟国だ。食料自給率は 111%ととても高く、

小麦、大麦をはじめとした主要穀物から、綿や世界一のシェアを誇るヘーゼルナッツなど多彩な農作物を生産している。ヘーゼルナッツは炭水化物、たんぱく質、繊維及び脂肪が特異な組み合わせとなっており、バランスのとれた、とても理想的な補助食品である。また、トルコには 57 もの空港がある。この事実から、トルコの恵まれた立地や空路を利用して食料の流通システムを作ることが出来るのではないかと考えた。そこでトルコのヘーゼルナッツを空路でアフリカの栄養不足で苦しむ地域へ効率的に輸送できるのではないかという問いを立てた。本論ではこの問いをトルコの現状と絡めて考察していく。

## 2, ヘーゼルナッツの現状

トルコはヘーゼルナッツの生産・輸出において世界一である。生産に必要な気候を備えており、全世界の生産量の 75%を、輸出量の 70~75%を占めている。従って食品そのもの、また関連産業は同国に大きな影響を与えている。実際、直接間接に約 400 万人が、トルコ

の 55~60 万ヘクタールの地域で生産されるヘーゼルナッツに関わっている。しかし、近年その過剰生産が問題となっている。毎年、消費・輸出しきれないほどのヘーゼルナッツが生産され、多くの場合国の機関が買い取りを行っている。余ったヘーゼルナッツは備蓄されて売り物にならないこともあれば、油に加工され、安い価格で販売されることもある。また、国の予算不足でヘーゼルナッツが買い取られなかった場合、農家の人々は収入を得られないことになる。これはトルコの社会・経済にとって大きな損失である。

## 3, 空路の現状

トルコ航空は年々空路を利用したビジネスを展開している。「21 日スターアライアンスに加盟しているトルコ航空がカンボジアの航空貨物ビジネスへの参入を表明した。

トルコ航空は 60 トンの荷物を取り扱え、プノンペンーイスタンプール間を毎週土曜日に運行する予定だ。トルコ航空と提携し、航空貨物を取り扱う GSA ワンワールド・アビエーション社（GSA-One World Aviation Co Ltd）によると、トルコ航空はプノンペン国際空港から外部の空港へ直接貨物便を送付する 4 番目の航空会社になるという。同社の責任者は、最初は貨物輸送を中心とし、来年中には旅客便への参入を検討するだろうと言ったという。トルコ航空は 7 月には、フライチーム系の K マイルやロシア系のエアブリッジ・カーゴへ参入するとみられている。そして、トルコ航空は高所得者が急増している中東市場をターゲットとして進めて行くことが予想されている。」（2016 年 5 月 26 日付 カンボジアニュース トルコ航空、航空貨物事業へ参入表明）このように、トルコでの空路の利用は年々増えているが、まだアフリカなどへの進出は進んでいない。

#### 4, 結論

関西創価高校では学年模擬国連を開催した。世界的に見ても空路の利用が少ない背景には飛行機のコストが高いということも挙げられる。しかし、トルコの象徴であるヘーゼルナッツの過剰生産による無駄や損を削減するためには少しのリスクを背負いながらも空路を利用して輸出を進めるべきである。よって、これを進めるためにはヘーゼルナッツの認知度を上げるべきである。よってこのヘーゼルナッツと飛行機というトルコの二大重要要素を最大限にゼロハンガーを目指す食料流通システムの構築に生かすためには序論でも述べたようにヘーゼルナッツを空路で輸出することが効果的であるといえる。

#### 参考文献

[http://www.maff.go.jp/j/zyukyu/zikyu\\_ritu/012.html](http://www.maff.go.jp/j/zyukyu/zikyu_ritu/012.html)

<http://bet-globalmacro.com/1230-analyse-turkey>

<https://flyteam.jp/area/europe/turkey/airport>

<http://www.jna-nut.org/?p=184>

### **Why Can Singapore's Government Provide Enough Food for Singaporeans?**

Singapore is one of the most famous sightseeing sites in Asia. There are beautiful beaches and glittering, tower buildings. However, the country is a small island. My research question was why can Singapore provide enough food for people living in Singapore, although they have only 0.64ha of agricultural land. Firstly, Singaporeans have an incentive to develop their country. Malaysia and Singapore split up in 1965. Since then, Singapore had to import a lot of food, water and competent worker, so Singapore's president proposed many good policies. Singapore government provide good education for citizens to cultivate competent citizens and bring clever people from other countries. Because of this, Singapore developed into a wealthy country and became known to many IT specialists. Also, they have good agricultural policies, Singapore imports 90% of its food from other countries, so Singapore imports from different countries because Singapore government are afraid that other countries will stop exporting food to Singapore. Also, they have plants to increase production of food. For these reasons, though strong motivation, economic power and agriculture policies, Singapore can provide enough food for people living in Singapore.

(186words)

## 1, 序論

治安もよく日本からの距離も近い、経済的に豊かな多民族国家シンガポール。その名は海外旅行のパンフレットなどでも目にすることは多いのではないだろうか。澄んだ海の広がるビーチにマーライオン、転じて高層ビルの立ち並ぶ街並みはまさに近未来的である。その美しい国は世界地図を見ればわかるように、マレー半島の南端にその小さな領土を有している。耕地面積は 0.6 千 ha と、日本の耕地面積 4 2 2 3 千 ha (2014) をはるかに下回り、農林水産 1 業の従事者も約 4000 人と類をみない低さとなっている。しかし一方で、英の調査企業エコノミスト・インテリジェンス・ユニットの世界食糧安全保障指数においてシンガポールは第 2 位にランクイン 2、世界のなかでも国民への食料供給の安定性の高さで評価されている。なぜ、耕地面積 0.6ha のシンガポールが、食料供給を高水準かつ安定してまかなうことができるのだろうか。この論文では、シンガポールの食糧供給を支えている、行動のインセンティブ、財政力、政策などの面からこの国の食糧事情を探っていく。

## 2, 行動のインセンティブについて

まず、この高い水準の食糧供給を達成するための行動のインセンティブは、間違いなくこの国の地理的脆弱性にあった。ことは 60 年前に遡る。1950 年代頃、その地には現在のマレーシアにシンガポールを含めた、マレーシア連邦があった。<sup>3</sup>しかし、このころ、マレー系を優遇するマレーシアとイギリス植民地時代にシンガポールにきた中華系の間で対立がおきた。マレーシア連邦首相のラーマン氏と、シンガポール人民行動党のリークアンユー氏（以下：リー）が融和が不可能と判断、リーがシンガポールの初代首相となった。独立したのはいいものの、シンガポールは苦境に立たされることになった。資源もない、領土も狭すぎる。ゆえに、外国につながる航路もない、水も、国民を十分に食べさせるだけの食糧さえも確保できない。本当に何も無いという危機感ゆえに、リーを中心としたシンガポール政府と国民は勤勉に働き、都市国家を発展させることができた。これがまず第一の行動のインセンティブの観点である。

## 2, 財政面について

2 つ目は、食糧供給を支える、財政面での豊かさである。これは当然 1 つ目の話ともつながるが、独立後の政府が打ち出した、戦略性をもった政策とその後のシンガポール経済の飛躍的な成長がいまのシンガポールをつくりだしたといえる。神足 (2013) 4 はそのリーが打ち出した政策の要を、「人材政策」、つまり 徹底したエリート教育と高度人材の受け入れにあると述べる。まずシンガポールの教育では、小学校の卒業時の試験に始まり、将来を決定づける様々なコースわけ試験が行われるため、常に競争にさらされながら上位を目指し学業に励む。また、政府機関に優秀な官僚を引き入れるため、高い給与と実力主義を

徹底。さらに国内だけでなく、1990年代後半から知識集約型産業を支える高度人材を獲得するため、戦略的に外国人、外国企業の受け入れを行ってきた。これらを始めとする様々な優れた政策により、いまでは国民1人当たりGDPは1万4501米ドル（'91年）とNIES（アジア新興工業諸国）の中でトップに位置している。<sup>5</sup> よってシンガポールの購買力は確かなものとなったとわかる。

### 3, 農業政策について

3つ目は、農業政策の綿密さである。シンガポールはその食糧供給の実に約9割を輸入に依存。依存体制の懸念をとりのぞくべく、近年シンガポールでは様々な「安定」のための取り組みを行っている。まず、政府の食糧機関では万一の事態に備えて食糧調達国の多様化を図っている。2009～2010年の時点で、調達国は近隣6のアセアン諸国やアジア太平洋地域の国だけでなく、ヨーロッパ、北米、南米におよぶ。また、自給率の目標として卵30%、葉物野菜10%、魚介類15%を掲げ、農業の機械化、農業技術開発などを通じ自国での食料生産力の向上に努める。また、政府は技術開発のための資金の提供も行う。革新的な技術や高度な農業システムに投資する企業にコストの30%を補助金として拠出。<sup>7</sup> これらの政策を通じて、ますます抜け目なく安定した供給を実現するのがシンガポールのスタイルなのである。

### 4, 結論

よって、これまでのべてきたような行動のインセンティブ、財政力、農業政策などによってシンガポールは食糧安定供給の確かな基盤を確保することができたのだ。シンガポール独立の歴史的背景と、その後のリーを中心とした政府の、先見の明ある政策がこの国を驚異的な発展に導いた。そして国内の農業分野も確実に力をつけはじめている。今回の論文ではシンガポール1国の食糧問題に着目したが、今後は先進国へと発展したシンガポールが他国の食糧問題の解決のためにどのような手段を提供することができるのかも考察していきたい。

### 参考文献等

1 [http://www.maff.go.jp/j/kokusai/kokusei/kaigai\\_nogyo/k\\_gaikyo/sgp.html](http://www.maff.go.jp/j/kokusai/kokusei/kaigai_nogyo/k_gaikyo/sgp.html)

2 <https://www.edb.gov.sg/content/edb/ja/news-and-events/news/2016/20160711-news04.html>

3 <http://singapore888.com/sg50/history.html>

4 <http://diamond.jp/articles/-/40621?page=4>

5 <http://www.nli-research.co.jp/report/detail/id=34682?site=nli>

6 <https://www.asiax.biz/biz/4181/>

7 <https://www.hiwave.or.jp/wp-content/uploads/2017/08/rp-sg1708.pdf>

### **What Ukraine Can Practice Toward Zero Hunger**

In the world, about 800 million people suffer from hunger. At present, in Ukraine from which I was the ambassador, there is no one who suffer from hunger, but it is not that Ukraine is rich. However, even if food issue does not relate to own country, we should tackle this with the spirit, no one left behind. Let me show what is an approach Ukraine can practice toward Zero Hunger as follows. First approach is to provide grains. Ukraine has a rich land for agriculture and the amounts of exported Ukraine's grains are in top10 in the world. Grains do not tend to bruise easily, so consumers can get edible food even if infrastructure is unstable. It is good support to Zero Hunger. Second approach is to provide technology to run farm to cultivate crops. In Ukraine, the public system to expand technology of farm management is completed, and also there is private service to give advice to farmers. If Ukraine give requiring countries this technology, it must help them. Third approach is to establish infrastructure. At present, Ukraine is supported by Marubeni Inc. and its infrastructure is becoming stable, so when Ukraine shares this technology with other countries, it can help to establish food distribution system toward Zero Hunger. I believe that all countries should not seek own profits knowing humankind as well as us die because of hunger. As I mentioned above, three things are what Ukraine can practice toward Zero Hunger. (245 words)

## GRIT 論文 「ゼロハンガーを目指す食料流通システムの構築」(ウクライナ)

### 1, 序論

現在世界では、8 億 1500 万人の人類が飢餓に苦しんでいる。これは全人類の 9 人に 1 人は食糧を十分に確保できていない事を意味する。私達はこの現状を果たして無視してもいいのだろうか。例え自国に関係なかったとしても、「誰も置き去りにしない」との精神で、現実と向き合っていくべきなのではないだろうか。大使を務めるウクライナには、飢餓に苦しむ国民は存在しないが、決して裕福なわけでもない。現在は、EU 加盟をめぐって、ロシアがウクライナへ軍事侵攻さえしており、さらに経済成長率もワースト 1 位である。しかし、この地球を一つの家族と見た時、自国の事ばかりではなく、もっと苦しんでいる他国の為に行動していくべきだとの信条がある限り、この現状にしっかりと向き合っていきたい。ゼロハンガーを目指して、自国にできる事を全うしていきたい。では、実際に、同国が実行可能なゼロハンガーへのアプローチとは何だろうか。

### 2, 検討

以下 3 点に分けて論じたい。

第一に農作物の提供からのアプローチだ。

「欧州の食料倉庫」これはウクライナの別名である。同国は肥沃な土壌を広域にわたって保持しているからだ。

実際、同国の耕地面積はロシアの 1/4 であるが、1ha あたりの収穫量はロシアよりも遥かに高い。その事もあって、食料自給率は 83.1%。小麦・大麦・トウモロコシ・大豆といった穀物の輸出量は世界でもトップ 10 に入る。さらに、ひまわりの種の生産量においては世界 1 位を誇る。これを武器にゼロハンガーに携わっていきたい。

穀物は人間の主食であり、栄養価が非常に高い。また、生鮮食品とは違い、痛みにくく長持ちする点も魅力の一つだ。そこで、同国の穀物を、積極的に飢餓人口の多い地域へ輸出すれば、例えその地域までの物流インフラが整っておらず、運搬に時間がかかったとしても、消費者のもとに食べられる状態で届けることが可能である。

第二に農場経営技術の提供からのアプローチだ。

ソ連時代より、ウクライナには各農場に経営技術のそれぞれの分野を担当する専門家が存在している。2004 年には、政府が農場経営技術の公的普及体制を確立する事を目的に、村落レベルの普及事務所の設立を許可する普及制度が立法化された。また、各地域においても民間の有料助言サービスなどが機能している。こういった体制がある同国だからこそ、国内総生産が低く飢餓人口が多い国に農場経営技術を積極的に提供していけると考える。また、対象国の技術向上のみならず、対象国内での新たな雇用の創出も可能であると考ええる。そのシステムを以下に述べたい。同国の各地域に存在する専門家、また普及事務所からの技術者を、対象国に数年間派遣する。そこで、農業技術を普及し、農場経営の基盤を

整える。これにより、対象国での農場経営は確立され、国内総生産は自然と増加するだろう。もちろん農場経営に携わる人達の雇用も創出され、仕事が増える。次第にはウクライナと同様、民間の有料助言サービスの設立なども期待される為、さらなる雇用創出も可能となるに違いない。

こういった国内総生産の増加と雇用創出は、対象国の自立を促し、ゼロハンガーに貢献していけると確信する。

第三に物流インフラの整備からのアプローチだ。

現在、ウクライナ自体、物流インフラが完璧に整っているわけではない。鉄道輸送やトラック輸送、河川輸送を利用しているものの、インフラの未整備により効率が悪い為、取引コストが高くなってしまっている。しかし、論点 1 でも述べた通り、同国の土壌のポテンシャルが高い為、同国への援助をしてくれる企業も存在する。その一つが、日本の丸紅株式会社である。丸紅は、穀物の輸出拡大と物流に関するソフト面への協力と、日本・アメリカ・ブラジルなどで培った穀物の物流システムのノウハウの提供を同国に行っている。こういった様々な機関からの援助により、同国の物流インフラは段々と整っていくだろうから、今度はその技術を、インフラ不整備の国へ還元していきたい。また、今ウクライナ国内にある技術で言うと、港付近で穀物エレベーターを設置したり、河川エレベーターを設置したりする事で、国内輸送を後押ししている。その設備の運営は8割以上が民営となっているから、この設備設置の技術を対象国へ提供できれば、論点 2 で述べた論理と同様、輸送の効率化だけでなく、新たな雇用にも繋がると信ずる。

### 3, 結論

ウクライナとしては、以上3点からゼロハンガーの実現を目指してアプローチをしていきたい。

どの国も問題を抱えない国は存在しない。自国をより良くする為に、利益を求める事も別に悪い事ではない。しかし、自分と同じ人間が、食糧不足で亡くなっていくのを横目に見て、自国の利益を求めるのは違うと思う。ゼロハンガーは人類が最優先に達成すべき目標だと思う。世界 196 カ国がお互いに助け合った時、全人類の「生きる権利」が保証されるのではないだろうか。

### 参考文献

<http://ja.wfp.org/news/news-release/170915>

<http://www.focus-asia.com/socioeconomy/photonews/421397/>

[http://www.keidanren.or.jp/journal/times/2016/0303\\_06.html](http://www.keidanren.or.jp/journal/times/2016/0303_06.html)

<http://www.jacom.or.jp/nousei/rensai/2016/12/161209-31586.php>

<http://www.mofa.go.jp/mofaj/area/ukraine/data.html>

[http://www.maff.go.jp/j/kokusai/kokusei/kaigai\\_nogyo/k\\_gaikyo/ukr.html](http://www.maff.go.jp/j/kokusai/kokusei/kaigai_nogyo/k_gaikyo/ukr.html)

<https://blogs.yahoo.co.jp/kyomutekisonzairon/66941965.html>

[https://www.marubeni.co.jp/dbps\\_data/news/2005/050815.html](https://www.marubeni.co.jp/dbps_data/news/2005/050815.html)

### **Improving Two Food Distribution Systems by Implementing Sister Cities Treaties**

These days, many people cannot get enough food to spend healthy lives even though enough amount of food for all people is being produced. Therefore, there is a need to establish systems to distribute the food to all people around the world. My research question was how we can improve two systems which have already existed to achieve zero hunger. Food Bank can distribute food which cannot be sold as commodities to those who cannot afford to buy food, but it is not clear about the person who is responsible. Food Distributors' business is to mediate food from a producer to a consumer, but price of the food would rise because they are companies which pursue profits. These two systems can be more effective for all people including those who cannot get food by sister cities treaties which make it possible to strengthen bonds between cities in both developing and developed countries.

(152 words)

## 1, 序論

近年、世界では多くの人々の健康的生活を蝕む飢餓がはびこり、国際連合が2015年に採択した持続可能な開発目標がその飢餓の終息を含んでいることに見られるように、この問題は今日の世界において早急に解決すべき問題である。特定非営利活動法人ハンガー・フリー・ワールドによると、毎年世界で生産される約25億トンの穀物が世界に住む73億人に平等に分配されていれば、一人当たり年間340キログラム以上を食べられることになり、これは日本人一人当たりが実際に食べている年間159キログラムを大きく超える量になるという。つまり、十分な食料を生産しているにもかかわらずそれが全ての人々の手元に十分に行き届いていないというこの状況を改善していくための効果的な方法を見出すことが飢餓の終息に向けた第一歩になると考えられる。では、そのゼロハンガーを目指すための食料流通システムとは一体どのようなものなのか。本論文では、2つのシステムの例を考察し、利点を活かし問題点を解決するための協力体制の必要性を論じていく。

## 2, フードバンク

1つ目に挙げるのは、フードバンクである。全国フードバンク推進協議会によると、フードバンクとは、「安全に食べられるのに包装の破損や過剰在庫、印字ミスなどの理由で、流通に出すことができない食品を企業などから寄贈していただき、必要としている施設や団体、困窮世帯に無償で提供する活動」である。この活動により、生産者から消費者に渡るプロセスの中のあらゆる工程で捨てられるはずの食品を確保することができ、それを様々な理由から食品を手に入れない人々の元へと分配できるという流通システムが確立する。しかし、無償で行うという慈善活動の一面を持つフードバンクは、世界規模で行う場合にはそれを維持するための資金をどこから支出するのかという点や健康を害するような問題が起きた場合の責任を誰が負うのかという点などにおいて大変複雑化することが懸念される。

## 3, フードディストリビュータ

2つ目に挙げるのは、フードディストリビューターである。フードディストリビューターは、アメリカ合衆国における代理業者の一つで、生産された食品を収集、管理し、それを必要としている消費者の元へと分配することを業務としている。これを飢餓が根強くはびこる地域に設立することができれば、「採れたものを採れた地で消費する」という地産地消の過剰な偏りによって生まれる「採れない地では何も食べるものがない」という状況を大きく変え、全ての人々が平等に食品を得ることができる。しかし、一方で、フードバンクとは異なり、会社という一面を持つフードディストリビューターは、社員の人件費や会

社の維持費を支える利潤を追求するために食品の価格が高騰し、貧困層には厳しい負担を突きつけることになることが考えられる。

### 3, 結論

これら2つのシステムはどちらも一国内においては円滑に稼働できているが、国と国をまたぐような世界規模のものになれば、現在それぞれが抱える問題点がさらに浮き彫りになっていくと考えられ、その実現を可能にするための基盤として新たな協力体制が必要である。それは、姉妹都市協定の促進により確立されることが期待される。国と国という大きな単位の支援協力では対象が余りにも大きいために支援が本当に必要な地域へ行き届いていないという現状が見られ、これを改善していくことができるのは地域と地域という小さな単位での協力体制である。加えて、結ぶべき姉妹都市協定は先進国の都市間のものにとどまるのではなく、特に、支援ができる地域とそれを必要とする地域の関係を増やしていくことが全ての国の地域が支援を十分に受けることを可能にする。

この協力体制が整ったとき、フードバンクやフードディストリビューターを民間ではなく姉妹都市間での公共事業として立ち上げることができれば、誰もが食べることに不自由しないゼロハンガーを目指すための食料流通システムが確立される。このシステムを公共事業として行うことにより、責任の所在が明確になることや双方にとって安定した雇用創出などを期待できるが、依然、多額の資金を必要とすることに変わりはない。しかし、飢餓の終息を真剣に望むならば、一部の人間や一国だけにとって利益となるものに多額の資金を浪費するという心の貧しさが多くの人々の食の貧しさを生んでいることを見直していく中にこそ、その希望の光が見えてくることを忘れてはならない。

(1807 文字)

### 参考文献

特定非営利活動法人ハンガー・フリー・ワールド 「世界の食料事情」

[http://www.hungerfree.net/hunger/food\\_world/](http://www.hungerfree.net/hunger/food_world/) (閲覧日：2018年1月9日)

全国フードバンク推進協議会 「フードバンクとは」 <http://www.fb-kyougikai.net/foodbank>  
(閲覧日：2018年1月9日)

### **The Role of Sierra Leone**

In the world, 795 million people are suffering from hunger, and especially in Africa, a quarter of people are suffering from malnutrition. My research question is how Sierra Leone, which is one of the poorest countries in the world can establish its food distribution system and contribute to the world to overcome hunger problems. Since there were civil wars and infectious diseases, farm lands were wasted, and the condition became worse. In addition, there are illegal fisheries around Africa, and it needs to be secured for safety shipping on the ocean. Regarding of these points, building international food bank can be the best way to establish food distribution system, and making the treaty to take action against illegal activities on the ocean can ensure the shipping of food. Although Sierra Leone is poor, it has potential to bring the positive change to the society. The world may achieve zero hunger with the cooperation of all of the countries. (158 words)

## 1, 序論

国連WFP (World Food Programme) によると世界の飢餓に苦しむ人口はおよそ7億9500万人であり、特にアフリカは地域別の飢餓人口の割合で世界一位、実に4人に1人が栄養不足であるという計算になる。アフリカ地域は、長きに渡る植民地支配の影響、民族紛争などの内戦の勃発、インフラ設備の破壊による不安定な食糧流通、経済格差による食糧配分の不平等など、食糧問題を含め未だ多くの課題が残る。2017年度の学年模擬国連では、「ゼロハンガーを目指す食糧流通システムの構築」と題し、92ヶ国の大使が議論を行った。この論文では、貧しいシエラレオネがどのようにして食糧流通を確立していけるのか、そしてどのように同国が問題解決に貢献していけるのかをテーマとし、一点目にシエラレオネ国内の現状、二点目に同国の食料に関する問題の現状、そして三点目にシエラレオネが学年模擬国連で提示したクローズに基づき解決策について展開していく。

## 2, 国内情勢

1991年にRUF (国内統一戦線) が蜂起し、シエラレオネ内戦が勃発した。その後当時のモモ政権はクーデターによって倒され、カバ政権が建てられるも、長く同国の政権は安定しなかった。1996年には再びクーデターが起これ、RUFとの連立軍事政権となるが国際社会から批判が殺到し、RUFが国土の3分の2を支配し、2000年5月1日には国際連合シエラレオネ派遣団 (UNAMSIL) の要員500名が人質になる首都フリータウン制圧事件も発生した。しかし、副大統領として権力を維持していたRUFのサンコーが市民に拘束された後からRUFは急激に弱体化し、2002年1月18日には和平とRUFの武装解除が完了した。2007年には初の大統領選挙による政権が誕生し、シエラレオネは民主化した。が、紛争の爪痕は深く、いまだ貧困や不十分なインフラなどの課題が残る。

## 3, 食糧問題

第二章でも述べたシエラレオネ内戦は10年以上続いたため、農地が荒れてしまい、シエラレオネの農業基盤は根底から崩れた。2014年にはエボラ出血熱の大流行の影響で、国境の閉鎖、地域の隔離、狩猟の禁止などで食糧不足がより深刻な問題となった。また、西アフリカ沖における、海底に甚大な被害を与えるトロール漁と呼ばれる方法が大多数を占める違法操業も、西アフリカ沖の環境破壊、流通の不安定を生んでいる。この違法操業は、食糧流通時の海上の安全が守られていないということにもつながり、さらなる安全面の強化が必要とみられる。

## 4, 改善策

2017年度校内模擬国連会議のなかで、シエラレオネは「大西洋沿岸の国々と協定 (大西洋沿岸国漁業権および流通取締協定) を作り、漁業権、海上からの流通を確立する。」「食品ロスを防ぐために、先進国と連携し、発展途上国を中心に国際的なフードバンクを設立。先進国にも食品支援要求。」という2つのクローズを提案した。1つ目の協定の目的は海上の、安全で確実な流通システムを構築することである。第三章でも述べた通り、問題となっている違法操業の取締りを強化することで海上を利用しての食糧流通の安定を期待できるという考えに至った。2つ目のクローズのフードバンクについては、食糧分配に格差があ

ることに着目した。フードロス・チャレンジによると世界では、生産された食糧のうちおよそ3分の1が「フードロス」と呼ばれる、食べられる状態で廃棄されている。しかしその一方では飢餓に苦しむ国が未だ存在するという現状があり、国際的なフードバンクを設立することができれば、食糧分配の不平等を解消できると考えた。

## 5, 結論

1年間のリサーチと模擬国連会議を通し、国際的なフードバンクを設立することで世界の飢餓問題は是正されるのではないかと、そしてシエラレオネが実際に貧困や飢餓に苦しんでいる国だからこそ問題の現状を世界に発信し、解決に向けての大きな足がけとなれるという結論に至った。課題としては、貧困に苦しむ状況でどこまで問題解決に積極的に携わっていいのか、そして流通システムの構築をどのように国の発展へとつなげていくかという点が残るが、これからのリサーチの中で流通システムの確立がもたらす多方面での影響を深く研究していきたい。

### (参考文献)

<http://ja.wfp.org/hunger-jp/stats>

[http://www.mofa.go.jp/mofaj/area/s\\_leone/00.html](http://www.mofa.go.jp/mofaj/area/s_leone/00.html)

<http://foodlosschallenge.com/>

### **For Developing Countries**

Starvation occurs in the world today. We held MUN on the theme of “establishing a food distribution system toward zero hunger”. I researched about England. I found that the one of the food problem`s cause is food distribution system. Today food distribution system is not good. My research question was whether England and developed countries should do to improve a food distribution system for developing countries. In the world, there are enough food, but starvation occurs. England has technology of refrigeration and frozen. In addition, it developed the trailer truck by using CO2. This track makes food cool. Developing countries also want to get technology of reducing destroyed food. Moreover, giving technology and supporting connect zero hunger. Thus developed countries should support for developing countries. In addition, we should support technology we have for developing countries and connection of developed countries should be strong. (144 words)

## GRIT 論文 「ゼロハンガーを目指す食料流通システムの構築」(イギリス)

### 1、序論

世界では今、飢餓が起こり、国連食糧支援機関によると、世界の人口の9人に1人の人が十分な食事を行えていない。ここで、飢餓とは、長期間にわたり十分に食べられず、栄養不足となり、生存と社会的な生活が困難になっている状態であることと定義する。今回、「ゼロハンガーを目指す食料システムの構築」というテーマで模擬国連を行い、イギリスについて調べた。世界で起こる食糧問題の根本的な原因の1つに、食料流通システムが不十分であることが挙げられる。そこで、今の不十分な世界全体の食料流通システムを改善するために、発展途上国に対して、イギリスをはじめ先進国は何をするべきなのか、という問いを立てた。このレポートでは、今の食料流通システムの不十分さを明らかにし、イギリスの持つ技術と発展途上国の不足する技術を照らし合わせ、イギリスをはじめとする先進国から発展途上国への国際協力の必要性を論ずる。また本レポートの目的は、イギリスおよび先進国の発展途上国に対する役割を明らかにすることである。

### 2、検討

まず、今の食料流通システムの現状について調べた。世界食糧計画(WFP)によると、現在、世界には全ての人々が健康で生産的な生活を送るために必要な栄養分を摂取するのに十分な食料があるにもかかわらず、食料危機が毎年発生している。そして、食料危機の要因として、アフリカ日本協議会のデータによると、その国の国内生産が十分であったとしても、貧困の水準や世帯の購買力を考慮に入れた食料の分配・流通システムに問題があり、食料が行き渡っていない、という現状がわかった。ここでキャッサバについて見てみる。キャッサバの世界最大の生産国はナイジェリアであるが、国内消費の少ないタイが国際貿易市場への主な輸出国となっている。なぜ、ナイジェリアが主な輸出国となっていないのか。それは、ナイジェリアでは生産量の7割が国内で消費される一方で、生産量の3割近くが流通過程で損傷し破棄されているのが原因である。このように、十分な食料があるにもかかわらず、流通過程で破棄されることによって飢餓が起こっている。

第二に、イギリスの持つ技術と発展途上国が今求める技術を照らし合わせる。イギリスでは、5年前から冷蔵・冷凍技術の専門企業などが実証実験を行い、そしてついには2016年に世界で初となる二酸化炭素冷媒(CO<sub>2</sub>冷媒)を活用した冷蔵・冷凍トレイラートラックをサステナビリティ戦略の一環として開発、そして正式に導入を決めた。これより、イギリスは冷蔵、冷凍技術を持ち、先進国の中でも特に優れていることがわかった。一方第2段落でも述べたように、発展途上国は流通過程の食料の破棄を最低限に減らす技術を求めている。特にアフリカなど熱帯地域では、暑さで農作物や穀物が損傷し、破棄されていることから、イギリスの冷蔵・冷凍技術、そして冷蔵・冷凍トレイラートラックを導入することでゼロハンガーの一步になると考える。

第三に、先進国から発展途上国への国際協力の必要性を論じる。ある援助団体は発展途上国の小規模農家に対して、野菜や果物の乾燥や保存に適した道具、保冷や梱包のための簡易装置を提供している。その結果、捨てられる食品は減りつつあるという。アフガニスタンのトマトを例に挙げると、無駄になり廃棄された量は 50%から 5%まで減少したという実績もある。第3段落や、この例より、発展途上国に対し少しの技術提供、援助を行うことは、確かに飢餓をなくすことにつながっている。この例は援助団体の話だが、需要や価格変動などが影響する国際的な取引において、弱い立場に置かれている発展途上国の後ろ盾、そして国際協力を先進国は国をあげてしていくべきであると考えている。

### 3, 結論

このレポートでは「今の不十分な世界全体の食料流通システムを改善するために、発展途上国に対して、イギリスをはじめ先進国は何をするべきなのか」、という問いを立て、現状の食料流通システムの不十分さや、先進国であるイギリスと発展途上国の技術を照らし合わせ、イギリスをはじめとする先進国から発展途上国への国際協力の必要性について調べ、論じてきた。ここまで述べてきたように、自国の持っている技術、インフラ整備能力など、1カ国1カ国が小さな技術力だとしても先進国がつながりを強固にし、発展途上国へ支援および技術提供をすることにより、ゼロハンガーに近づいていく。

よって、これらの現状、根拠より「先進国のつながりを強固にし、発展途上国に対して自国のもつ技術の支援を行うべきである」との結論を得た。今後、技術提供をした上での問題点と、発展途上国の将来を見据えた自立をするにはどうすべきかを調べていきたいと思う。

### 参考文献

- ・数字で見る飢餓 | 国連 WFP <http://ja.wfp.org/hunger-jp/stats>
- ・サステナビリティ・ESG 投資 ニュースサイト  
<https://sustainablejapan.jp/2016/05/14/co2-refrigerant/22161>
- ・アフリカ日本協議会 [http://www.ajf.gr.jp/lang\\_ja/activities/fs-column1.html](http://www.ajf.gr.jp/lang_ja/activities/fs-column1.html)
- ・シリーズ 90 億人の食 捨てられる食べ物  
<http://natgeo.nikkeibp.co.jp/nng/article/20141022/421121>

# 「世界津波の日」 2017 高校生島サミット in 沖縄

## 参加報告

### ■ 概要

2017（平成 29）年 11 月 7、8 日の 2 日間、沖縄県宜野湾市で開催された『世界津波の日』2017 高校生島サミット in 沖縄』に、本校の代表として高校 2 年生 2 名、1 年生 1 名がチームとして参加した。2015 年 12 月に国連総会委員会において、11 月 5 日を「世界津波の日」とすることが全会一致で採択され、本サミットはその啓発イベントとして昨年に引き続いて催されたものである。沖縄県は、1771 年に八重山地震による「明和の大津波」で多くの犠牲



者を出した。この津波は世界でも最大級と言われ、今でも各地に津波石と呼ばれる歴史的遺産がある。また沖縄県は、多くの有人離島をもつ日本唯一の島しょ県であり、本サミットには沖縄県と同じような自然環境を有する島しょ国の若者が一堂に会した。この度、日本を含む世界 26 か国の高校生 255 名が沖縄県に集い、防災、減災、復興をテーマにプレゼンテーションの発表やディスカッションを行った。

### ■ 事前準備

参加にあたり、テーマを選択して事前調査を行い、8 分程度のプレゼンテーションを英語で作成した。本校は「災害に備える」を選択し、本校での生徒・教職員の防災意識の向上、防災のためにできることや、知識啓蒙について調査し、取り組んだ。具体的には、阿倍野防災センター、津波・高潮ステーションへの訪問学習、教職員・全校生徒を対象にした意識調査の実施などを行い、本やインターネットはもちろん、本校の防災担当職員へのインタビューなどからのリサーチ内容も加え、本校生徒らの防災意識が低いのではないかという課題点にたどりついた。この点をもとに、11 月のサミットまでに取り組めるアクションプランを中心に挙げ、実行に移したうえで、当日を迎えた。プレゼンテーションを完璧に仕上げるため、すべて暗記して臨めるよう日々の反復練習にかなりの時間を割いた。

### ■ 行程

#### 《1 日目（11 月 7 日）》

開会式では安倍総理のビデオメッセージや自民党・二階幹事長のあいさつなどがあり、開会式終了後はさっそく分科会グループに分かれ、ブリーフィングが行われた。東京学芸大附属国際高校や沖縄の八重山高校等に加え、ツバル、セーシェル、ペルーなど海外の高校生とも英語で討議を。お互いの仲を深

め、和やかで有意義な時間となった。

#### 《2日目（11月8日）》

朝、分科会から2日目スタート。どの学校も独自の観点から内容をまとめており、生徒たちにとって非常に勉強になったようである。本校生徒のプレゼンテーションは非常に好評で、アクションプランを実際に取り組んできて手ごたえを報告できたことで、他校の生徒たちにもよく伝わったようである。また、何度も何度も繰り返しプレゼンテーションを練習してきたため、ディスカッションでの英語の説明は非常にスムーズにでき、自分たちの主張をしっかりと伝えられたという実感を得られたようだ。昼食でも積極的に他校・他国の生徒たちと輪を作り、交流する姿が光った。その後記念植樹、全体での記念撮影を行い、夜には歓送交流会が開催された。各国の伝統文化を披露する出し物で学びも深めながら、2日間共に学んできた国内外の友人との別れを惜しんだ。



#### ■ 生徒の感想

応援してくださる方々に励まされ、2日間頑張りぬくことができました。初日、会場に到着してからは、積極的に他の国内外の高校生に話しかけ、たくさんの友達ことができました。ときには、英語が聞き取れないときもありましたが、自分たちの全力を尽くしました。

2日目は分科会でのプレゼンテーションの発表がありました。最初は緊張しましたが、今までの練習の成果を出し切り、大成功させることができました。自分たちが今まで約半年間をかけて、活動してきたアクションプランや学んできた日本の防災について海外の高校生と知識を共有し、また他の国の防災についてたくさん学ぶことができました。

総会では各グループのプレゼンテーションのまとめとキャッチフレーズを代表者が発表し、全員で決議を完成させることが出来ました。

最後のフェアウェルパーティーでは、短い時間でしたが、目があったら話しかける事を心掛け、一人でも多くの友を作ろうと、自分たちの殻を破り、積極的にたくさんの人に話しかけました。新しくでき

た世界中の友と交流し多様な文化を学びました。また各国の伝統的なダンスやパフォーマンスに会場中が盛り上がりました。

この2日間、今まで知らなかった他の国の災害の脅威についても学ぶことができ、また世界の友に友好の輪を広げることができました。この経験は私達の金の思い出です。これからは、この経験を活かし、グローバルリーダーに成長してまいります！



**青年よ平和の心を世界まで!**  
**核兵器廃絶への高校生による国際会議に代表派遣**  
2017.4.1-5

四月一日から五日までの五日間、長崎で行われた日本、アメリカ、ロシアの三カ国の高校生による核兵器廃絶問題に関する国際会議のクリティカル・イシューズ・フォーラム（C I F）に、昨年に続き招待された関西創価高校から、赤岩清隆君（高校三年）と山岸世来さん（同）が参加した。C I Fは、大量破壊兵器の拡散問題と戦っているアメリカのミドルベリー大学の国際大学院モントレイ校の付属機関である、ジェームズ・マーティン不拡散研究所（C N S）が行っているプログラムである。

日・米・露から計十七校が招聘を受け、日本からは七校が参加。各校代表二名の派遣であったため、校内選抜では応募者に対する筆記とインタビューによる試験を実施。十二月中旬に赤岩君と山岸さんが選ばれた。まず初めに二人はC N Sへ提出する「ミニプロジェクト」の作成に着手した。約二カ月間かけて世界の核問題について調べ、英語でスライドを作成。次にこれをもとに当日に発表するプレゼンテーションを作った。核に関する創立者の提言や書籍を読み深め、春休みも登校して準備を進め、参加直前まで入念に練り直して本番を迎えた。

四月一日に長崎空港に到着した二人は、会場となる私立活水高校で他のC I F参加メンバーと合流し、全員で長崎観光をした。翌二日午前、プレゼンのリハーサルのために活水高校へ。その際に活水高校の生徒が「ふりそでの少女」という被爆した二人の少女を描いた絵本の朗読を聞かせてくれた。午後はC I F参加者で爆心地である長崎平和公園と長崎原爆資料館を訪れた。資料館では皆、原爆の残虐さに接し終始言葉を発することができなかった。最後に被爆者の体験を英語で聞き、「この世から核兵器をなくすために、あなた方の力をどうか貸してください」との叫びが心に残った。

三日、活水高校で日・米・露それぞれの生徒が今回のテーマである「包括的核実験禁止条約（C T B T）と核兵器のない世界に向けた役割」をもとにプレゼンを行った。赤岩君と山岸さんのプレゼンは、包括的核実験禁止条約批准のためには各国での核廃絶教育が大切であるという内容であった。二人は学校で行った核についてのアンケートの結果より、若い世代は核について学ぶ機会が少ないため、知識がなく関心も少ないという現状分析をし、高校生が核兵器の問題や核に関する条約などを学べる教育カリキュラムを提案した。その中には、被害を受けた方への励ましの手紙を綴るといった同苦の心を育むアクティビティも盛り込まれ、人々の心の変革から発する人道的アプローチによって核廃絶へと導くものであった。二人のプレゼンの後、会場からは賛同の拍手が響き渡った。

四日の午前は前日に続き各校のプレゼンがあり、午後からは被爆地にある城山小学校を訪問した。城山小学校は爆心地から約五百メートルに位置し、爆発に耐えて残った建物の一部に入れてもらった。メンバー全員が原爆の破壊力の恐ろしさを全身で感じた。その後、長崎原爆資料館で、包括的核実験禁止条約機関準備委員会事務局長のラッシーナ・ゼルボ氏の講演とセッションが行われた。山岸さんからの「情報が操作されている非民主主義国家において、私たちはどのように

世論に影響を与えますか」という質問に対してゼルボ氏は、「メディアによらぬ人間と人間の対話を何とかして実現させることが重要である」と答えた。最終日の五日は、核軍縮に向け活動している諸団体の方々とのディスカッションの機会を持ち、C I Fは終了した。

プログラムを終えて二人は、「人々の心から平和の思想を広げていこうという私たちの主張に対し、核保有国である米・露の生徒は政策変更などの政治的アプローチを強く主張しており、核軍縮という共通目的には立っていても方法論の違いを感じました」「英語は世界への切符です。英語が話せると大きく世界が広がります」と語った。

#### 〈行程表〉

4月1日

- 伊丹空港発、長崎空港着
- C I F 参加者全員で長崎観光

4月2日

- プレゼン発表リハーサル
- 活水高校生徒による「ふりそでの少女」の朗読
- 爆心地を視察
- 長崎平和公園、長崎原爆資料館

4月3日

- プレゼン発表

4月4日

- プレゼン発表
- 城山小学校を視察
- 長崎原爆資料館ホールでラッシーナ・ゼルボ氏の講演、セッション

4月5日

- 長崎ユース代表団のプレゼン
- 長崎大学核兵器廃絶研究センター（RECNA）とのディスカッション



第 64 回国際理解・国際協力のための高校生の主張コンクール（大阪大会）  
最優秀賞（全国大会出場）

より人権が守られる世界の実現のために、国連は何をすべきか  
高校三年 佐藤美樹

「死ぬのは苦しみ。しかし、生きるのも苦しみ」

これは、ある原爆投下についてのドキュメンタリー映画の中で、被爆された女性が涙ながらに語られていた言葉です。映画で紹介されていたこの女性の家族は原爆によって亡くなり、彼女だけが生き残ったものの、待っていたのは被爆者として差別や偏見を受け、人間らしく生きることができない人生でした。「死ぬのは苦しみ。しかし、生きるのも苦しみ」。原爆投下により、戦時中に限らず、その後も多くの方々の人権が侵害されてきました。

その一方で、第二次世界大戦後、世界人権宣言や国際人権規約が採択され、多くの人権を守るための取り組みが行われてきました。さらに、近年国連では、「誰も置き去りにしない」世界の実現を目指し、SDGs においても様々なアプローチがなされています。しかし、このように人類が長年努力し、作り上げてきた平和の結晶を一瞬にして破壊するのもまた、核兵器の存在なのです。世界には未だに一万五千発以上の核弾頭が存在しています。原爆投下から七十二年経った今もなお、大量の核弾頭が残っているのはなぜでしょうか。それは、核兵器がなければ、国際秩序をたもてないという悪魔の発想が、未だに正当化されているからだと思います。

私は今年の八月六日、広島で行われた日本各地やハワイの高校生の友と原爆や平和について考える peace フォーラムに、学校の代表として参加しました。原爆慰霊碑を訪問した時のことです。慰霊碑の前に一人の女性がたたずんでいました。遺族と思われるその方の頬を伝う涙を見た時、私の胸に悲しみがよみがえりました。今年の春、私は父を癌で亡くしたのです。大切な人との別れがどれだけ辛いものなのか経験して、さらに、今後核兵器によって大切な人が奪われるなんてことは、絶対にあってはならないと思いました。

広島・長崎の悲劇を繰り返さないための鍵、それは「若者の意識の変革」だと考えます。第七代国連事務総長のコフィー・アナン氏は言いました。「教育とは防衛費の最も効果的な使い道である」と。

私は、peace フォーラムに参加した際、同世代の仲間が、核の問題を自分たちの問題と捉え、核廃絶に向けて行動を開始している姿に触発されました。このように、未来を担う青年が自ら問題意識を持ち、連帯していける機会を設けるべきだと思います。

具体的に、人の命について深く考え直せるような人権教育の推進を、私は国連に提案します。自分の父が亡くなってから気づいたことがあります。それは、すべての命は誰かにとってかけがえのないものであり、軽視されていい命など一つもないということです。原爆投下による二十一人の犠牲者は単なる数字ではありません。その一つ一つに大切な生活、かけがえのない夢、それぞれの希望があったのです。被爆者の方がご高齢になり、直接お話を伺うことが難しくなってきた今、私たち若者は想像力を働かせ、人の痛みを自分の痛みのように感じる必要があります。そして、何十万人もの命が亡くなることを担保にして、国際秩序を作り上げようとする核抑止論

が間違っていることに気づくべきではないでしょうか。

国連では、一九九五年から二〇〇四年にかけての、「国連人権教育の十年」により、多くの学校のカリキュラムに人権問題が取り入れられ、生徒たちは人権問題を身近に考えることができました。国連のこの実績をもとに、今度は核と人権について特化した、「核の脅威から人権を守る人権教育の十年」という計画を行うことを私は提案します。

核兵器について学ばば学ぶほど、高校生である自分の無力さに失望することがあります。しかし、今年七月に核兵器禁止条約が採択されたように、希望を捨てなかった民衆による平和への闘争が、核なき世界を実現する大きな一歩となったのです。私も、希望を持って歩み続け、誰もが核の脅威に怯えることなく、生きる喜びを感じられる世界を私たち若者の連帯で実現していきます。

(朝日新聞掲載)

「大切な人奪われることあつてはならない」

府高校生主張コン  
高校生の土  
主催 法人大



「第64回国際理解・国際協力のための高校生の主張コンクール」(大阪ユネスコ協会主催)の府大会が9日、守口市の大阪国際大学であった。府内の高校生10人が参加。自身の体験などを元に国連の取り組み、役割について、それぞれ熱弁を振るった。

最優秀賞に輝いたのは、関西創価高校3年の佐藤美樹さん(17)。「より人権が守られる世界の実現のために、国連は何をすべきか」

をテーマに話した。佐藤さんは今年、広島に原爆が投下された8月6日に広島を訪れた。原爆慰霊碑の前で、涙を流す遺族を目にして、胸が痛くなった体験を紹介。今春、父を病気で亡くしたことを打ち明け、「大切な人との別れがどれだけ辛いものなのか」を実感したと訴えた。

「核兵器によって大切な人が奪われることは絶対にあってはならない」と主張。国連ができることとし

て、「人の命について深く考え直せるような人権教育の推進」を挙げた。

佐藤さんは10月に東京で開かれる中央大会に出場する予定。「全国の高校生から刺激をもらいながら、1番を目指して頑張りたい」と話していた。

(光墨祥吾)

予選(9日・豊中ほか)

▽1回戦

茨木 5-3 英真学園  
布施 12-7 関西大倉  
大阪学院大 10-7 上宮  
浪速 6-4 信太  
大塚 6-1 久米田  
都島工 11-8 岸和田産  
▽2回戦

堺 3-2 千里(延長13回)  
箕面学園 3-0 藤井寺  
千里青雲 10-6 和泉総合・泉  
大阪借星 5-1 佐野  
岸和田 11-5 桃山学院  
佐野工科 18-9 柴山(7回コールド)

145



“謝謝!” すてきな縁えにしにありがとう

### 中国語コンテスト世界大会に出場

29・10・13～29



十月十三日から二十九日の行程で中国・雲南省昆明で行われた第十回「漢語橋世界中高生中国語コンテスト」の本選（世界大会）に中国語クラブの黒田恵美さん（高校二年）が出場した。十七日間の中国での体験やエピソードを黒田さんに綴ってもらった。

昨年、私は西日本予選で一位を逃し、見学メンバーとして中国に行きました。一年前の悔しさと、「今年こそは」との決意に燃えて今年も挑戦したところ、七月の西日本予選を最優秀賞で勝ち抜き、念願の選手として胸を張って中国へ行くことができました。

最初の二日間は北京で観光をしました。一つひとつの建物や場所などの歴史を知り、故宮や万里の長城、頤和園を見学したり北京ダックを食べたりなど、見るもの聞くもの食べるもの全てに中国の歴史の長さを感じました。

十六日に北京を立ち、三時間ほど飛行機に乗って雲南省昆明市に到着。それからの三日間で筆記試験、スピーチ、パフォーマンスの三部門での選考がそれぞれ一日ずつ行われました。筆記試験では中国語そのものの語学的知識から、中国文化、歴史、政治や産業など、幅広い知識を問われました。スピーチでは自己紹介に加え、くじ引きで当たったテーマについてペアとのスピーチを作成しました。（ペアは、福井県出身の高校生でした）。「中国のレストランに行ったら何を頼むか」や「好きな中国の行事」など様々なテーマがある中、私たちが引いたテーマは「私の好きな都市」。私たちはすぐにその都市を、この大会が開催される昆明市に決めて準備しました。パフォーマンスは、快板という中国の芸能を披露しました。快板とは、ひもを通した数枚の竹の板を両手の指の間にはさんで、リズムを取って打ち鳴らしながら小話を語るという芸です。私は面白いオチで終わる二分程度の話を中国語でしました。私は世界トップ10には入ることができませんでしたが、三部門全てでベストを尽くすことができ、悔いはありません。九十五カ国から集まった百を超えるチームがあったので、パフォーマンスでは、例えば歌ったり、中国舞踊やカンフーを披露したり、中には獅子舞やお茶をいれるパフォーマンスなどもあり、どれも見ていて面白かったです。大会中は選手同士で励まし合い、とても温かい空気がありました。

大会が終了してから約一週間の行程で、地元の中学校や大学を訪問して授業を受けたり、学生と交流したりしました。また、「世界一の奇岩の景勝の地」と言われる石林や雲南民族村などを訪れました。

最終日には決勝戦があり、そこで世界一が決まります。決勝まで残った五チームの対戦をその他のチームは観戦しました。今年の世界一は、アメリカでした。アメリカチームは発音がまるで中国人みたいで、表現力がすごく、スピーチも迫力があってやはり強かったです。

中国で過ごした十七日間はあっという間でしたが、自分がまだ見たことのない世界を目の当たりにし、感動し、そして全てを吸収する勢いで過ごしました。支えてくださった全ての方に感謝の気持ちでいっぱいです。本当にありがとうございました。

〈行程表〉

10月13日

関西国際空港発、北京首都国際空港着

14日

故宮見学、孔子学院本部での歓迎会に参加

15日

万里の長城、頤和園の見学

16日

北京から空路雲南省昆明市へ

17日

「漢語橋世界中高生中国語コンテスト」開幕

一次審査（筆記）

18日

二次審査（スピーチ）

19日

三次審査（パフォーマンス）

20日

現地の中学校の茶道の授業に参加

中学生の家庭を訪問

21日

雲南師範大学構内で中国の伝統文化を鑑賞

22日

中学生の家庭（二日前とは別）を訪問

23日

雲南民俗村見学（少数民族の伝統芸能鑑賞を含む）雲南民族博物館見学

24日

ロボット工場、花マーケット見学

25日

雲南省にある世界遺産・石林見学

26日

雲南白薬（雲南省で有名な医薬品メーカー）見学

27日

雲南師範大学で弓道の授業に参加

決勝戦のリハーサル見学

28日

決勝（最終選考に残った五ペアが中国語の演劇等を披露）を見学、閉幕式

29日

雲南省から空路日本へ帰国



## 英語パフォーマンス甲子園プレ大会入賞

明年より開催される「英語パフォーマンス甲子園」のプレ大会が8月19日(土)、奈良県ならまちセンターで行われ、関西創価高等学校1年の古島冬馬君、東園良朗君、廣谷健斗君が準グランプリを受賞した。

大会のテーマは、「地域文化と持続可能な社会」で、このテーマを英語とパフォーマンスで表現する大会。SGH 校を中心に9校が競い、ハイレベルな大会となった。独創性などの評価基準で審査され、生徒たちは第一回目の大会ということもあり、テーマをいかに表現するかに苦心したが、生徒たちは「神輿」を作る際の本組みが釘を使わず、縄のみで作成するという日本伝統技術をユニークに表現。抜群のチームワークとユーモアでパフォーマンスを行い、審査員からは大絶賛の評価をいただいた。



## 英語ディベート部



2017年12月23日、24日、高校英語ディベート部は、東京大学生産技術研究所で行われたPDA 高校生即興型英語ディベート全国大会に出場し、64校中15位となった。論題はその場で発表され、準備時間は15分間、試合時間は約20分間。高度な英語スピーチ力と論理能力が試される。

第一試合、第二試合と連勝したが、第三試合で惜敗。審判からは、スピーチ力、論理力と全く差はなく、相手側の質問の1つが良かったので、それで勝敗を決めたとの講評を受けた。生徒たちは自信を失うことなく、次の試合に全ての望みを託し臨んだ。そして第4試合は見事勝利。予選リーグを3勝1敗で終え、15位となり、昨年の29位から大きく順位を伸ばすことができた。来年こそは全国優勝を勝ち取っていききたいと決意していた。

生徒たちは、この全国大会に向けて他の活動等の両立をしながら、空いた時間を最大限に活用し、準備に臨んできた。結果として昨年を大幅に上回る成果を出すことが出来た。また練習の中では、後輩の育成にも全力を尽くしており、本校の指針の一つである「先輩は後輩を弟・妹のように可愛がって大切にしなければならない」との言葉を実践する、素晴らしい振る舞いであった。



「模擬国連」で問題解決のための政策の検討と意見交換する生徒ら



# 模擬国連 提案競う

グローバル・リーダー“卵”が迫真交渉

## 関西創価高「SGH中間研究発表」公開授業

〔広域〕

研究発表会を開き、国際的に活躍できるグローバル・リーダー育成を目指すSGHのプログラム、探究型総合学習「GRIIT (Global Research & Inquiry Time)」の授業公開を行った。会場では高校生とは思えない迫力ある交渉が行われ、一つのドラフトレゾリューション(DR)が採択された。(藤井葉子)

同校は文部科学省から「スーパーグローバルハイスクール」の中間評価で最高評価を受けている。

授業は11日に行われ、3年349人全員による模擬国連で、議題は「ゼロハンガー(飢餓ゼロへの挑戦)」を指す食料流通システム「構案」。生徒3、4人で海外の1カ国を担当、割り当てられた国になりきって、問題解決のための政策(クロ

ス)を提出し、他の国と交渉し、一つのドラフトレゾリューション(DR)を作成する。今回は五つのDRが提出され、各国の大使役が協議し、二つの決議案「ドラフトレゾリューション」が提示された。

このDRが採択される結果となった。ベストカントリー賞に選ばれたオランダ担当チームの黒川緑さんは「実際には言葉や文化、価値観が違ふ国同士が一つの事を決めるのはもっと大変だと思う」と語り、小島賢太さんは、「他国との交渉にはプレゼンテーション能力やコミュニケーション力が本場に必要だと思った」と振り返った。

福田秀太さんも「国と国との間には深い問題があり、相手国を理解することが大切。世界問題に興味を湧いた」とプログラムの成果を実感。また会議監督を担った模擬国連部の小西彩華さんは「各国について調べていくと多くの発見につながり、どんどん次の学びにつながっていくところがおもしろい。将来は平和に貢献できる仕事に就きたい」と目を輝やかせながら話した。

## SGH中間研究発表会

# 高校生ら 迫力ある交渉

関西創価高校



SGH中間研究発表会「模擬国連」

関西創価高校(交野市)は11月1日、SGH中間研究発表会を開催し、国際的に活躍できるグローバル・リーダー育成を目指すSGHのプログラム、探究型総合学習「GRIIT (Global Research & Inquiry Time)」の授業を公開した。会場では高校生とは思えない迫力ある交渉が行われ、一つの「ドラフトレゾリュション(DR)」が採択された。

同校は文部科学省から「スーパーグローバルハイスクール」の中間評価で最高評価を受けている。授業は3年生349人全員による模擬国連で、議題は「ゼロハンガー(飢餓ゼロへの挑戦)」を目指す食料流通システムの構築。生徒3、4人で海外の1カ国を担当、割り当てられた国になりきって、問題解決のための政策(クローズ)を検討。自国のクローズに15カ国以上の賛

同国を集めて、決議案の草案となる「ワーキングペーパー(WP)」を作成する。今回は5つのWPが提出され、各国の大使役が協議し、2つの決議案「ドラフトレゾリュション」が提示された。決議案は69カ国以上の賛成で採択となるが、タフレット端末による投票が行われ、1つのDRが採択される結果となった。

ベストカントリー賞に選ばれたオランダ担当

チームの黒川緑さんは実際に言葉や文化、価値観が違う国同士が1つの事を決めるのはもっと大変だと思うと語り、小島賢太さんは、「他国との交渉にはプレゼンテーション能力やコミュニケーション力が本当に必要だと思った」と振り返る。

福田秀太さんも「世界問題に興味があった」とプログラムの実感を感じている。また会議監督を担った模擬国連部の小西

彩華さんは、「各国について調べていくと多くの発見につながり、どんな次の学びにつながっていくかがおもしろい」と目を輝かせながら話した。