

YOUTH Competition on Climate Change Policy Report

Table of contents

I. Project schedule	1
II. Project summary	1
1. Overview	1
2. Briefing session	2
3. Consultation session	4
4. YOUTH Competition on Climate Change Policy	5
III. Project publication	18

Host:
Ministry of Foreign Affairs

Co-host:
Yokohama City

Cooperation:
**Ministry of the Environment, ICLEI Japan, Google Japan G.K.,
National Museum of Emerging Science and Innovation,
Japan Climate Leaders' Partnership**

Secretariat
Japan Forum on International Relations

I. Project schedule

Date	Event
2020 October 2	Application to competition opens (through email)
October 13	Briefing session (ZOOM webinar)
November 6	Consultation session (meeting room at the Ministry of Foreign Affairs)
November 30	Application to competition closes
2021 January 17	YOUTH Competition on Climate Change Policy (ZOOM webinar)

II. Project summary

1. Overview

The Ministry of Foreign Affairs held “YOUTH Competition on Climate Change Policy” online on Sunday, January 17, 2021 (co-host: Yokohama City; cooperation: Ministry of the Environment, ICLEI Japan, Google Japan G.K., National Museum of Emerging Science and Innovation, Japan Climate Leaders’ Partnership; Secretariat: Japan Forum on International Relations).

Application for the competition started on the Ministry of Foreign Affairs (MOFA) website on October 2, 2020. For students who wish to participate, an online “**briefing session**” was held on October 13, and a “**consultation session**” was held on November 6 at the MOFA. Total of 18 applications were submitted by the deadline of November 30th.

The applications were reviewed and six student groups were selected to participate in the competition on January 17.

At the **YOUTH Competition on Climate Change Policy** held on January 17, 2021, six student groups gave presentations on climate change policies. Each group was required to make a presentation with the common theme of “Policies for your town to realize a decarbonized society.” For the presentation, they were required to use data related to climate change, perform simulations on climate change countermeasures of an existing local government and make suggestions to the local government. They were also required to choose an existing local government and present its characteristics and specific issues it faces.

Six judges scored the presentations based on (1) and (2) below. One group was awarded with the

Foreign Minister's Award, and another was awarded with the Judges' Special Award.

(1) Problem setting, analysis and proposal making

Originality, problem analysis for the local situation, specifics, feasibility, ability to use data

(2) Presentation performance and handling of questions

Easy-to-understand presentation, variation and impact, flexibility, time management

On the day of the competition, video messages were given by NAKANISHI Satoshi, Parliamentary Vice-Minister for Foreign Affairs (host); KOBAYASHI Kazumi, Deputy Mayor of Yokohama City (co-host); and Patricia ESPINOSA, Executive Secretary of the United Nations Framework Convention on Climate Change at the beginning of the competition. Several lectures were also given on the related themes.

Summary of the briefing session, consultation session, and the competition are described in Section 2, 3 and 4 below.

2. Briefing session

For students who are considering applying for the competition, a briefing session were held on how to look at government policies and how to use data.

Date and time: Tuesday, October 13, 2020 (16:30–18:00)

(1) Format: ZOOM webinar

(2) Number of participants: 50

(3) Agenda:

Opening

Lectures

(a) MAEHIGASHI Kenji, Principal Deputy Director, Climate Change Division, International Cooperation Bureau, the Ministry of Foreign Affairs

(b) NOBUTOKI Masato, Director, Yokohama SDGs Design Center

(c) MATSUOKA Tomomi, Google Earth Outreach Program Manager, Google Japan

Closing

(5) Lecture summaries

Lectures given were: “About Japan’s Climate Change Policy” by MAEHIGASHI Kenji, Principal Deputy Director, Climate Change Division, International Cooperation Bureau, Ministry of Foreign Affairs; “Policies for your town to realize a decarbonized society” by NOBUTOKI Masato, Director of Yokohama SDGs Design Center; Introduction of Tools” by MATSUOKA Tomomi, Google Earth Outreach Program Manager, Google Japan. Lecture summaries are given below.

(a) MAEHIGASHI Kenji, Principal Deputy Director, Climate Change Division, International Cooperation Bureau, Ministry of Foreign Affairs

Aiming at realization of a decarbonized society under a virtuous cycle of economy and environment, Japan currently makes global contribution through 1.3 trillion yen of annual support and transfer of Japan's advanced technologies to developing countries through Joint Crediting Mechanism (JCM). In the field of innovation, we are implementing measures in use of renewable energy and realization of a hydrogen-based society, as well as measures against climate change with use of technologies such as CCU and CCS. In this way, Japan is actively taking measures toward a decarbonized society, and, for future, it is necessary to incorporate new technologies and ideas that are completely different from the conventional systems. For the future policies, we are looking forward to unique perspectives and ideas of young Japanese people.

(b) NOBUTOKI Masato, Director, Yokohama SDGs Design Center

When formulating a policy, it is important to know the “personality of the city.” It is essential to understand the historical background and specific issues the city is currently facing based on evidence. For example, in the case of Yokohama City, the personality is shown in three keywords: (a) “Diversity: a city with diversity” involves the sea, urban areas,



Lecture speakers

farmland and green spaces, new and old, terrain, such as *yato* (valleys); (b) “Challenges: a city that has been created in challenges” involves the fact that new businesses have been born in Yokohama since its opening of the port, such as those for raw silk, telegraph and telephone, railway, gas, water supply and sewage systems, soap, beer, ice cream, and horse racing; and (c) “Emergence: the number of G30 and NPOs, which show the creativity of the citizen.” Yokohama also has been using such keywords as “environmental model city” to share the knowledge and “expansion of options” in its policies to seek citizen involvement. In addition, cooperation within the government and cooperation among local governments have been promoted to realize zero-carbon life. Yokohama's initiatives have been serving as a reference for other cities in terms of “government-private partnership,” too. As described above, it is important to implement policies with unconfined ideas using unique features of the public organizations, private sectors (citizens), and the academia.

(c) MATSUOKA Tomomi, Google Earth Outreach Program Manager, Google Japan

Google developed the Environmental Insights Explorer (EIE) that supports global cities to take informed actions and solutions to reduce CO2 emissions. This makes it possible to access the data of greenhouse gas estimated emissions and emission reduction estimates by solar potentials for currently 124 cities,※ and it allows users to do simulation changing the values in the data. The first data this tool provides is estimated total annual consumption of electricity and estimated greenhouse gas emissions from the buildings. The second data is estimated total gasoline consumption of each transportation method calculated from the total traveled distance and the fuel efficiency, which is used to calculate the estimated total greenhouse gas emissions. The third data is the estimated amount of greenhouse gas reduction by solar potentials. The amount of power generation by solar panels installations for each house is calculated taking into consideration even the influence of wind and the surrounding environment, which is used to estimate the total amount of reduction. Since these data are calculated following the same methods for all the cities in the world, it is possible to compare data among different cities. And these numerical data can be downloaded and shared to support efficient policy making. ※223 cities as of March 2021.

3. Consultation session

Following the briefing session described above, a consultation session was held for students who are considering applying for the competition. In the session, students were able to ask various questions in analyzing policies. Summary of the consultation session is shown below.

- (1) Date and time: Friday, November 6, 2020 (17:00–19:00)
- (2) Format: Face-to-face meeting in a meeting room at the MOFA
- (3) Number of student participants: 11
- (4) Summary of consultation:

Six staff members from the MOFA and the Ministry of the Environment participated as counselors. First, the staff members answered the questions from the participating students that had been sent prior to the meeting. Then, the participants were divided into small groups and consultation was made in a discussion style. Major questions from the students are as follows.



Question 1: When considering a public-private partnership policy, are there any specific cases where there is a possibility of conflict with laws and regulations? Also, what are the laws and regulations that should be generally reviewed? Are there any restrictions on working with private company?

Question 2: What kind of form can be considered when a government agency and a private company cooperate to provide services, especially when the

government comprehensively cooperates with multiple companies in the same industry. How are the profits treated in most of the cases?

Question 3: AI technologies have been increasingly used in recent years both in the public and private sectors. How are the technologies used for climate change policies in Japan and other countries?

Question 4: What kind of stakeholder participation is expected in advance when formulating policies?

4. YOUTH Competition on Climate Change Policy

Of the 18 groups that applied, six groups passed the preliminary screening. On January 17, the **YOUTH Competition on Climate Change Policy** was held online, partly open to the public. The Foreign Minister's Award was given to the group of Chuo University (YAMAMOTO Yuga and ENDO Mizuki), and the Judges' Special Award was given to the group of Yamanashi Prefectural University (KOBAYASHI Yuki, OSHIMA Kanako, and Jie Shanxin).

Note: This competition was originally scheduled to be held at the new city hall building of Yokohama City but was changed to take a format of ZOOM webinar due to the COVID-19 pandemic.

(1) Date and time: Sunday, January 17, 2021 (14:00–18:00)

(2) Format: ZOOM webinar

(3) Number of participants: 82 (including 16 students in six groups who made presentation)

(4) Agenda:

(a) Opening (opening remarks):

NAKANISHI Satoshi, Parliamentary Vice-Minister for Foreign Affairs

KOBAYASHI Kazumi, Deputy Mayor of Yokohama City

Patricia ESPINOSA, Executive Secretary of the United Nations Framework Convention on Climate Change

(b) Presentation by the student groups on policy proposal (municipality chosen)

Hiroshima University (Higashihiroshima City)

Chuo University (Obihiro City)

Yokohama National University (Yokohama City)

Chuo University (Saitama City)

Yamanashi Prefectural University (Yamanashi Prefecture)

Bruna (Tokyo Metropolitan Government)

(c) Lectures

Japanese staff working at international organizations (career path)

- OGAWA Masako, Pacific Climate Change Center, the Project for Capacity Building on Climate Resilience in the Pacific, JICA Expert (Chief Advisor)
- YAMADA Ryuji, Programme Manager, Regional Office for Asia and the South-West Pacific, World Meteorological Organization
- SAHARA Juichiro, Head of Resource Mobilization, Green Climate Fund

MATSUOKA Tomomi, Google Earth Outreach Program Manager, Google Japan, "About EIE"

MIYAJIMA Hiroki, Director for Coordination Division, Climate Change Policy Headquarters, City of Yokohama, "Measures using EIE"

(d) Closing (announcement of competition results)

[Opening remarks]

(a) **NAKANISHI Satoshi, Parliamentary Vice-Minister for Foreign Affairs**

The government of Japan has declared that by 2050 Japan will aim to reduce greenhouse gas emissions to net-zero, that is, to realize a carbon-neutral, decarbonized society. Achieving this goal requires a drastic change of lifestyle and perception, and therefore it is not easy at all. In order to lead the decarbonization of



the world, it is important to start measures based on novel ideas that are not bound by conventional methods and ideas. Thus, the Ministry of Foreign Affairs decided to organize its first competition on climate change policies.

(b) KOBAYASHI Kazumi, Deputy Mayor of Yokohama City

While climate change is an issue for the future, the immediate first step is crucial. To this end, the power of the younger generation is essential. The city of Yokohama has declared Zero Carbon Yokohama in 2018, and since then, it has been working toward the realization of a decarbonized society by 2050. Strong will of each and every one of us is important to achieve our goals toward 2050. We are confident that by passing this on from our generation to the next generation, we will surely pass on a beautiful earth to the future.



(c) Patricia ESPINOSA, Executive Secretary of the United Nations Framework Convention on Climate Change



The world has greatly changed due to the COVID-19 pandemic, but it cannot change the voices of young people who want a cleaner, greener and more climate-resilient world. The coronavirus pandemic will never alter our resolve, determination and passion to address climate change. You all have a unique opportunity to influence 21st century decisions concerning climate change implementation of

environmental policies. I am sure your video work and report today will be very useful: for important stakeholders in Japan and at the pre-COP youth engagement sessions in September in Milan.

[Presentation by the students on policy proposal]

(a) Hiroshima University: “Reduction of greenhouse gases by reusing furniture and home appliances (Higashihiroshima City)”

In our proposal submitted to the preliminary screening, we stated: “Furniture and home appliances we use emit a lot of greenhouse gases during the manufacturing process. So, we can reduce the emissions by reusing furniture and home appliances. The reuse can reduce the manufacture of furniture and appliances by up to 60%.” However, we realized that there is no evidence to back this proposal, and the 60% reduction would not be achieved. Then, what is “evidence”? Evidence-based policy means that the policy and the change that will occur when the policy is implemented are in a causal relationship. To verify the causal relationship, we conducted a thought experiment with two groups in

Higashihiroshima City: “intervention group,” where the policy is implemented, and a “control group,” where people continue their lifestyle as before. Then, we found that, while the policy will reduce new purchases of furniture and home appliances in Higashihiroshima, purchase of new products will increase in other areas. Our conclusion that the emissions would be “reduced by 60% at maximum” was mistakenly reached because we had a hidden assumption that furniture and home appliances are discarded after four years of uses. That is, there was no causal relationship between the reusing policy and the greenhouse gasses reduction. Certainly, if furniture and appliances that were supposed to be discarded are reused, the number of products to be manufactured will be reduced. However, the older the product, the less energy efficient it is, and there is a risk that reuse will accelerate climate change. So, we decided to make a major change to our final presentation.

It has been shown that even experts can reach an optimistic policy as we did. The United States has an impressive history of WAP, an energy efficiency program for households, which has provided subsidy to 75 million households since 1968. However, according to a 2018 U.S. study, a post-assessment of the program showed that many were not interested in the program and the reduction of power was far below the prediction by experts. As shown in this case, it is very important to confirm the evidence even in the policy that seems to be working.

Evidence-based policies are needed to prevent these failures from happening again. As a new evidence-based proposal for Higashihiroshima City, we thought the city “regularly notify the residents, including those who live in neighboring areas, of the energy consumption and the possibility that new tax can be imposed to electricity consumption due to carbon pricing.” There is evidence to this policy. In a 2014 study conducted in the United States, the intervention group was notified of energy consumptions compared with neighboring households. This notification made many households work hard on energy conservation compared with the households in the control group. The efforts on energy saving continued even after the notification was discontinued. Such a measure is considered to have greater effects in Japan than in the United State, as people in Japan tend to have “lockstep mentality.” In addition, a 2019 Nobel laureate in economics reports that people will work hard on energy saving when a tax increase in the future is announced in advance. Greater reduction effects can be expected when these two pieces of evidence are combined.

In Higashihiroshima City, where 14% of greenhouse gases are emitted by electricity consumption from households, the government is facing an issue that its per-capita carbon dioxide emissions from households is higher than that of the national average. In addition, as many people are staying home due to the COVID-19 pandemic, the electricity consumption of households has been significantly increasing. Our proposal should also be helpful to solve this problem. However, it is not clear whether the notification was actually effective just by giving a notification that combines the two pieces of evidence. It is also necessary to divide the households into two groups, i.e., the intervention group and control group, compare the two groups, and verify the evidence, rather than simply notifying them.

We hope this proposal will be adopted by Higashihiroshima City as an opportunity to start evidence-based policy making and post-project evaluation.

(b) Chuo University: “‘Furusato Agricultural Power Generation’ that balances agriculture and power generation with renewable energy (Obihiro City)” (Foreign Minister’s Award)



We chose Obihiro City, Hokkaido, as a local government for which we make a proposal. The main characteristics of Obihiro include the average sunshine hours that are longer than the national average and its strong agriculture and livestock industries. The issues in the region include the aging of farmers, the shortage of successors in agriculture, the need to improve profitability amid the rising production costs, and the need to secure lifelines in the event of a disaster. Next, two issues in Obihiro City’s environmental policy are: (1) Greenhouse gas emissions from households are increasing and (2) Specific policies to encourage environmental improvement behaviors of residents are lacking. As a policy improvement measure to address these issues, we propose the city “to aim for carbon-neutral and self-sufficient power generation within the city based on voluntary energy-saving behaviors and consumption choice of the residents.”

More specifically, we propose two systems: “Furusato Agricultural Power Generation,” an environment-oriented economic system, and “Tom Tom Point,” a reward point system. This is a proposal to solve regional issues at once by making the best use of the special features of the region based on the environmental policy improvement measures that we have pointed out.

First, we would like to explain the “Furusato Agricultural Power Generation.” This is an economic system, where four actors of the government, farmers, electric power companies, and residents work together to create demand of the residents for renewable energy, promote citizen-centered environmental improvement activities, and realize local production and consumption of electricity and agricultural products. To operate this system, a large-scale power plant using the abundant renewable energy in Obihiro City will be constructed in the city with the joint investment of the government and the electric power company. The power plant houses two types of facilities: a farm-type solar power generation facility and a biomass power generation facility that uses livestock manure, so that both agriculture and power generation are conducted. The electric power generated in the plant will be sold

to the electric power company, which runs electric power supply business only with electricity generated from renewable energy. Residents will make contracts with an electric power company involved in the project, take environment-friendly consumer choice actions (e.g., purchasing agricultural products labeled as products grown by a farmer supporting the program), reduce electricity consumptions at home, and participate in government-led environmental plans. As a part of return for the indirect investment for participating in the project, the residents will earn reward points that can be exchanged for agricultural products and livestock products produced in the area. The reward points are also given when residents take energy-saving actions at home and participate in government-led environmental programs using this system, which in turn will promote citizen-oriented environmental activities.

Next, we would like to explain the Tom Tom Point system. This reward point system plays an important role in promoting the development and use of the Furusato Agricultural Power Generation system. As explained earlier, the reward points are given when a resident makes a contract with an electric power company involved in the Furusato Agricultural Power Generation system, purchases agricultural or livestock products produced by a participating producer, participates in an environmental project carried out in Obihiro City, and saves a certain level of electricity in the household. The collected reward points can be exchanged for vegetables or meat sold at supermarkets and farmers' markets run by the agricultural cooperatives. The use of reward points should be gradually expanded to a wider range. It should be planned to make the use of the reward points possible for discounts when a resident replaces his/her car with an electric vehicle. The operation of this service and development of application software should be led by the government. We also propose development of Tomupo, an application software linked to this reward point service. The application will allow each of the residents to "visualize" his/her environmental improvement actions, which is expected to further raise his/her awareness in environmental improvement.

As shown above, our proposal is for an environmental policy that is community-based and in the form of local production for local consumption. This allows use of the regional characteristics of Obihiro City and solves local issues, while significantly reducing greenhouse gas emissions and realizing a decarbonized society.

(c) Yokohama National University: "Promotion of energy-saving detached houses that use electric vehicles as storage batteries (Yokohama City)"

We selected Yokohama City as the area for our policy proposal. As a climate change policy for the city, we propose a measure to promote "net zero energy houses" (ZEHs) for newly built single-family residents in Yokohama City.

Looking at the ratio of carbon dioxide emissions by sector in Yokohama City, emissions from the household sector account for a quarter of the city's total emissions. As this is 10.2% higher than the national figure, we set the household sector as the issue in Yokohama City.

We focused on “net zero energy houses” (ZEHs) for the drastic reform of the energy structure of the household sector as ZEHs allow energy saving from the houses themselves. Although ZEHs can reduce carbon dioxide emissions to 80% of those of ordinary houses, the construction of ZEHs has not been increased due to high equipment costs. Yokohama City has a subsidy system to promote ZEHs, but the number of cases that can be subsidized is limited, and there are still obstacles to popularize ZEHs on a large scale. We thought that the city should promote to popularize the ZEHs by making the ZEHs more attractive, rather than focusing on subsidies to reduce the costs, as an investment target by improving the profits the resident can obtain from living in a ZEH. Specifically, we promote the following three measures.

(1) Promotion of ZEHs with effective use of electric vehicles

Storage batteries required for ZEHs are expensive, but they have no other use than as storage batteries. We propose use of electric vehicles (EVs), which are used as a transportation means, as the batteries for ZEHs. Yokohama City will cooperate with automobile manufacturers and house manufacturers to carry out advertising activities for technical support and promotion of ZEHs. But an issue remains if the ZEH storage battery is replaced with an EV. When the EV is in use, the generated power cannot be stored but has to be sold at a low price. For this issue, we suggest the following two solutions.

(2) Use of parking spaces to take advantage of the special features of ZEHs

A service to rent the parking space of ZEHs when the EV is in use should be promoted. ZEHs are equipped with EV charger and can generate electricity independently. Taking this advantage and adding another value of being able to rent the parking space, ZEH owners can increase their income.

(3) Building a local energy market to incorporate energy prosumers

An environment that enables electricity consumers to directly trade electricity with each other should be built with the P2P method using blockchain technology. This will allow ZEH owners, who are energy “prosumers,” to sell the electricity they produce at a higher price than it is now, further improving the profitability. In addition, consumers who receive electricity will be able to buy electricity at a lower price.

We assumed, through these measures above, that the investment payback period will be estimated to be shortened by 10 years compared to the conventional ZEHs due to the improvement of the annual profit of the ZEH owners, increasing the construction of ZEHs to 20% of the newly built detached houses in Yokohama City. Calculation based on the assumption resulted in annual reduction of 2,932 tons of carbon dioxide emissions.

(d) Chuo University “Reducing household electricity consumption by consolidating the daytime population into the libraries” (Saitama City)

We chose Saitama City in Saitama Prefecture as the local government for our project. In July 2020, Saitama City declared to be a zero-carbon city. Active implementation of a climate change policy by Saitama City should have a positive impact on neighboring cities.

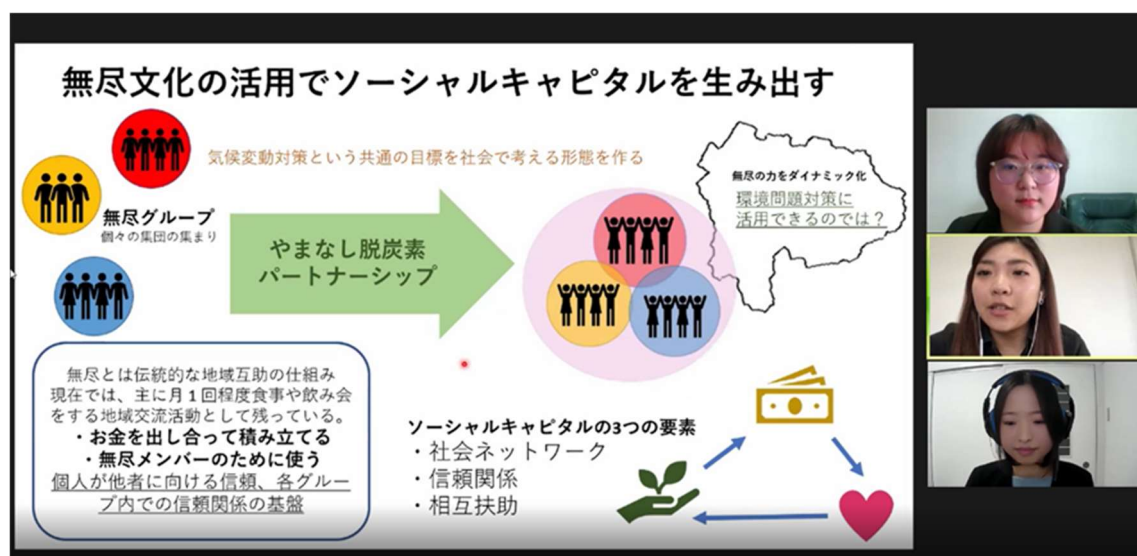
One of the challenges for Saitama City toward the realization of a decarbonized society is the high ratio of power consumption by households among the power consuming sectors. Specifically, it accounts for 26.2%, about twice the national average of 14.4%. We thought that the problem could be overcome with consolidation of the daytime population of Saitama City, which has a low day to night population ratio, into one place to reduce the power consumption of each household. We concluded that public libraries are the best sites to consolidate the daytime population. The number of libraries located in Saitama City is 25 libraries, the second highest of the 814 municipalities. However, the utilization rates of the libraries are low, and measures for improvement are needed. Also, an amendment to a law is currently under examination to allow the residents to read library books with their smartphones, and new roles of libraries have been sought. For these reasons, we propose to use libraries as the sites to consolidate daytime population.

We suggest four specific measures for implementation of our proposal to consolidate the daytime population in libraries in order to reduce household electricity consumption: use of zero-carbon electricity in the libraries, coin-operated laundry run in the premise, promotion of use of library as a remote office, coupons given away for visitors. The use of zero-carbon electricity at the libraries involves solar power generation systems at the library, which are too costly for private households to install, to reduce carbon dioxide emissions in the consolidation sites. Considering the climatic conditions of Saitama City and the agreement between Saitama Prefecture and TEPCO, this is highly likely feasible. The second idea of coin-operated laundry is suggested based on the activities of homemakers (female and male), who make up the majority of the daytime population. Homemakers may be willing to spend the daytime at a library if they can do laundry there. The third idea, promotion of use of library as a remote office is to allow people work from library. Currently, “work from home” has been emerging as a work style, and it is expected to become more popular. By making use of Wi-Fi available and setting a space where people can eat and drink, the environment in the library will be improved for workers, leading to the consolidation of the daytime population. We suggest the fourth idea, coupon give-away for visitors, to raise the environmental awareness of the residents and to allow visual check of their contribution. This is also linked with the second and third ideas, coin-operated laundry and the eating/drinking space.

The amount of CO₂ emissions that can be reduced by implementing the four measures above is estimated to be 1 kg per person. This is equivalent to about 25% of the carbon dioxide emissions from the household sector, and thus significant contribution to decarbonization is expected. We hope that

these measures will accelerate decarbonization and, at the same time, popularize remote work, allowing the people to more easily make a balance between work and family/child-rearing.

(e) Yamanashi Prefectural University: “A financing system that balances regional economic revitalization and environmental conservation with ‘*Mujin*,’ a mutual aid system that is passed down in Yamanashi Prefecture (Yamanashi Prefecture)’ (Judges’ Special Award)



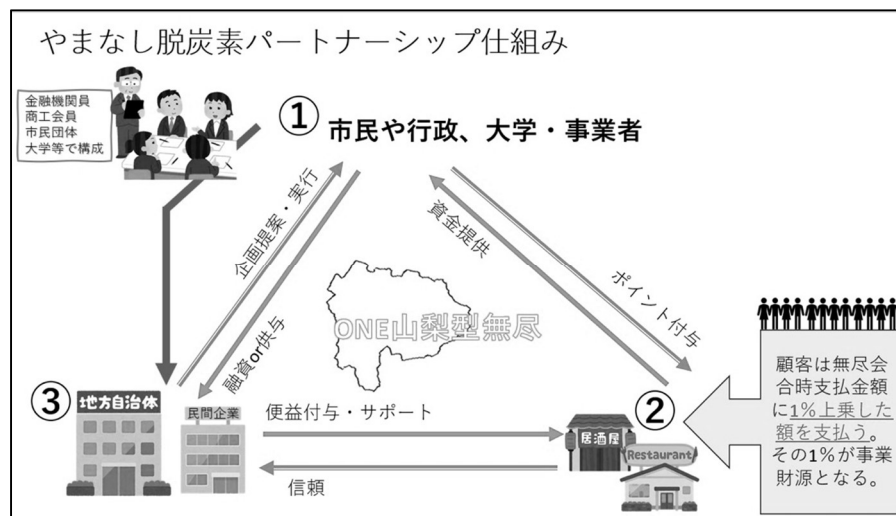
As measures against global warming and the associated climate change issues are sought on a global scale, and as set forth in the 17th goal of the SDGs, a wide range of partnerships beyond the barrier of different positions of the governments, private companies and citizens are needed. “*Mujin*” is a mutual aid system that has long been rooted in Yamanashi, and even today it serves as a base for people’s mutual help and communication. We propose Yamanashi Decarbonization Partnership as a system that is based on the local culture. This is a system of mutual help that all people living in the area participate in to solve the issues of climate change. By drawing out the social capital that the region traditionally owns, it will raise the people’s awareness in cooperation while realizing both revitalization of the local economy and environmental conservation. Our proposal is to construct such a new economic system.

[Regional issues]

The government of Yamanashi Prefecture, where we live, is working on environmental measures by effectively using its natural-rich environment. However, from the perspective of decarbonization or low carbon, the region still have many issues. For this proposal, we focused on two issues. First, there is not enough understanding of the regional residents, which is important for promoting solar power generation. Second, no obvious results have been shown in the issue of waste generation, especially waste plastics, which has become an issue throughout the world in recent years. In order to further promote measures for decarbonization and low carbon and achieve the greenhouse gas emission reduction target, cooperation

between private businesses and governments, as well as the understanding and participation of citizens, are indispensable. Reduction of CO₂ emissions is inevitable for human beings to live in harmony with the global environment. If people cannot recognize this as a real fact, however, no measure can be taken by the whole society. The key is how to integrate the government, local residents, and businesses, even when there are various opinions for the issue, as in the case for solar power generation. Taking particular note of this, we concluded that it is necessary to create an economic system where the government and citizens work together and take the lead to reduce CO₂ emissions.

[Proposal]



The Yamanashi Decarbonization Partnership uses *Mujin*, the traditional custom of the area. In this system, part of the money used for social exchange activities is collected as a fund, which will be lent or given to companies or governmental organizations in the prefecture that work on decarbonization activities. This mechanism will support private companies to carry out production activities in harmony with the environmental conservation, and it will also raise the awareness of residents in the prefecture to participate in the creation of a decarbonized society. Specifically, restaurants can participate in social exchange activities based on the traditional custom of accumulating funds by local residents called *Mujin* (member of *Mujin-kai*). A part of the sales of these restaurants is used to support economic activities of companies, individuals and governments in the prefecture that are effective for decarbonization. To this end, we assume roles for three groups: (1) a group that manages the collected funds, and evaluates and decides which activity to finance, (2) a group that provides funds from daily sales, and (3) a group that receive financial support and proposes economic activities to realize decarbonization. For each group, we presume (1) citizens, governmental organizations, universities/businesses, etc., (2) restaurants that are members of the partnership, and (3) municipalities in the prefecture and private companies.

As for the group (2), the funds are raised from extra 1% of payment that will be collected when customers hold *Mujin-kai* meetings. The group (3) make proposals on measures and business activities to solve environmental problems to the group (1) along with the goals set on their own. The group (1) will examine

the business activities and decides on loan or grant. After receiving financial support, the group (3) can issue a voucher to the group (2) as a return each time when the goal is achieved. The members of group (2) receive points instead of raising funds and can choose the return issued according to the points they possess.

This business cycle connects the organizations in group (1), member restaurants in group (2) and companies and local governments in group (3) to create incentives for each of the participants. Member restaurants will have incentives, such as to get good reputation from customers for their environmental measures, to let the community know that they are a project member and to receive vouchers. Incentives for companies and local governments will include the need to fulfill their accountability to citizens, customers or shareholders by achieving their social responsibilities and to contribute to the local community by delivering vouchers to member restaurants. Delivering of vouchers to member restaurants by local governments and businesses can be expected to have such an effect as improvement of the citizens' views on the governments and businesses. The organizations in the group (1) will have incentives to watch over and support companies and local governments, to act on the common goal of the international community to build a sustainable society through public-private partnerships or to respond to domestic demands. They also have initiatives to fulfill their responsibilities in the local community by achieving specific results in regional environmental conservation activities in Yamanashi Prefecture.

(f) Bruna: “Green Wall Art competition (Tokyo Metropolitan Government)”

We chose Tokyo Metropolitan Government (TMG), which has the largest number of specified business operators that can be a source of CO₂ emissions. One of the current issues to reduce CO₂ emissions in Tokyo is considered to be how to improve the efficiency of electricity consumption in the use of heat in office buildings. In Tokyo, where office buildings are densely built, the worsening of the thermal environment due to the heat island phenomenon has been a serious problem. In order to solve this problem, we focused on the needs to improve thermal efficiency with “green walls” and to raise public awareness to support implementation of the policy. Wall greening policies have been implemented through subsidies and regulations to build a certain area of green walls. However, enthusiastic efforts and support by the city as a whole are still insufficient. In addition, in order to raise public awareness, the demonstration experiments currently carried out are not enough as they are conducted only at a local level and only with the next-generation-style urban construction. Rather, simultaneous demonstration experiments across multiple regions should be done to achieve the KPIs for realization of the ideal of each region.

As a solution, we propose a green wall art competition. Specifically, this competition will be financed with the Tokyo Green Bond, a bond of tens of billions of yen established to realize zero emissions in Tokyo. In collaboration with the museums located in Tokyo, TMG will run a competition for art works with the theme of climate change measures and display selected works in various parts of Tokyo. This will serve as an incentive for businesses and citizens to work on greening and play a

role as an advertisement so that the residents of Tokyo directly recognize importance of climate change countermeasures on a daily basis. At the same time, expansion of green wall areas can reduce about 207.5 tons of CO₂ emissions per year (assuming greening of up to about the third floor on the west and south sides of the office buildings in Shinjuku Ward), reduce the daytime temperature of the building surfaces by up to 10°C and decrease the heat inflow rate into the rooms by up to 90%.

Also, as wall greening is a global trend, the Green Wall Art Competition will be an opportunity for TMG to make an appeal within and outside Japan its seriousness on climate change countermeasures. This can be a main program in the climate change measures amid the transition to a smart city. When demonstration experiments are carried out in multiple regions in Tokyo to gain understanding of the residents, TMG can constantly identify issues for the policies and obtain feedback.

We consider the community business industry, which has been developing, as a site for demonstration experiments to raise public awareness to work on social issues. Through the construction of society-related capital that comes into direct contact on a daily basis, it can be aimed to expand the framework of citizen awareness from a public entity of their community to the whole society and the world. When supporting these community businesses, climate change countermeasures should be included in the requirements. Consideration for the environment will develop from daily life, and together with the individual's sense of contribution to the community, a society in which the traditional concept of "be beneficial to all three sides" will be restored will be formed.

The wall greening policy will serve as one of the measures in the transition to a smart city centered on climate change measures. A society will be created where each of the communities has raised public awareness and selects climate change measures that suit its special features.

[Lectures]

(a) OGAWA Masako, Pacific Climate Change Center, the Project for Capacity Building on Climate Resilience in the Pacific, JICA Expert (Chief Advisor)

The specialized employment may be one of the attractive aspects of working in the field of international cooperation. While working on a project to achieve the goal within a certain amount of money and period, the roles and capabilities of individual members are valued, which leads to satisfaction of achievements. Also, we need to have the ability to prioritize and respond flexibly to new challenges that emerge one after another. We work in an environment where culture, people and lifestyle are greatly diverse compared to Japan. We can make contribution to the region in such a refreshing environment.

(b) YAMADA Ryuji, Programme Manager, Regional Office for Asia and the South-West Pacific, World Meteorological Organization

The World Meteorological Organization (WMO) is a specialized agency of the United Nations that contributes to international cooperation on meteorological, hydrological and climate data, which are indispensable for building a meteorological observation network. It also makes contribution to the application of the data to human activities, such as aviation, shipping and agriculture. Being able to visit various countries and see the real sites are very important for our job. It also provides us with opportunities to objectively view the country of Japan from various perspectives. In addition, while working with staff members with diverse backgrounds, we can see that we are making contribution to reduction of damages from natural disasters and to promotion of social activities.

(c) SAHARA Juichiro, Head of Resource Mobilization, Green Climate Fund

One of the advantages of working in an international organization is that we can develop a career in a specialized field. Also, we work under the mandate of UNFCCC and not under the interests of particular national governments or private companies, and therefore, we can work independently to fulfill the mandate given to us to work with all developing countries. Green Climate Fund (GCF) is the world's largest dedicated fund to fight climate change, and as it is relatively new, the size of the Secretariat is relatively small. Because of such a background, GCF has unique features, such as the close relationship among staff members, which allows quick decision-making and easy recognition of individual achievements. It is also an important feature of GCF that we can contribute to the development and the maturation of the organization.

(d) MIYAJIMA Hiroki, Director for Coordination Division, Climate Change Policy Headquarters, City of Yokohama

The city of Yokohama has given classes on global warming at a total of five junior high schools, high schools, and universities using Google's Environmental Insights Explorer. Students learned about the mechanism of global warming and gave thought to what they could do through the experience of EIE. They also discussed environmental issues by incorporating the perspective of the SDGs. In particular, the classes focused on the roles of the metropolitan Yokohama, which has announced to concrete action plans for global warming countermeasures, including the declaration of zero greenhouse gas emissions and the formulation of strategic measures for efficient use of renewable energies. As an example of wide-area cooperation, a case where electricity derived from renewable energy generated in the Tohoku region is supplied to the city was introduced. Students who experienced the functions of EIE said that they were surprised by the lack of greenery in Yokohama City compared to other cities and the large amount of carbon dioxide emitted from the household sector. Some students made suggestions for the city to encourage the use of trains and next-generation

automobiles, as well as solar power generation. We were able to see that use of EIE and other tools that visualize the current status of the region can raise the interest of the residents and that the tools were effective in implementation of global warming countermeasures.



Ceremonial photo taken at the YOUTH Competition on Climate Change Policy

II. Project publication

After the YOUTH Competition on Climate Change Policy was held, the results and details were made public on the websites of the MOFA, the universities of participating students, and the Japan Forum on International Relations (secretariat). Media responses on the event include the articles featuring the participating students by the Kanagawa Shimbun on Wednesday, January 27, 2021 and the Yamanashi Nichinichi Shimbun on Sunday, February 14, 2021.