

Yasufuruichi & St. John's Joint Work

In the summer in 2019, when we visited St. John's Grammar School, we decided to express our opinions by creating joint websites and recording our discussions so that we can share our opinions with more people. We hope this website will be the first step to protect the global environment. Also, we expect people who will read our website have the opportunity to think about global warming. Here are what we have presented to St. John's students or what we have learned from St. John's students through web meetings.

Our study about small hydropower

We are studying small hydropower generation. It can power the area where it is installed. I think we can create our own original system using small hydropower. In Japan, where many disasters occur every year, we are able to realize that climate change is affecting our daily lives. In order to solve this issue, it is necessary to take measures in each region, based on their different environments. Therefore, we are proceeding with a project to introduce a power generation method using small hydropower generation in Japan. The advantage of this project is that it can make it possible to create a disaster-resistant city. The current method of distributing electricity is to send it from a large power plant to many areas. We think we should introduce small hydropower on a regional basis. When a disaster occurs, lifelines such as water and electricity are severed. If we use small hydropower generation, it can be possible to supply electricity by region and minimize damage in the area even if lifelines are severed. The project is just getting started, and we would like to continue our research in order to solve various international problems such as climate change.

About Paris Agreement and Efforts

Have you ever heard of the Paris Agreement? The Paris Agreement is an international agreement about measures to be taken against global warming, and it begins from 2020. The goal of the Paris Agreement is to keep the global average temperature rise at less than two degrees. In Japan, it aims to reduce greenhouse gas emissions by 26% by 2030, compared to 2013. Japanese companies have made various attempts to stop global warming,

including the development of electric vehicles, the use of renewable energy for power generation, and converting plastics into plant-based materials. So, what can we do concretely as individuals? First, we can save electricity. We can reduce the frequency at which we open and close the refrigerator, and minimize our use of air conditioning. Also, we can reduce the amount of waste we create. It is important to buy what can be reused and not to create waste. However, it is more important to be conscious about global warming. If this agreement should not work well, sea levels will rise, and as a result, parts of land may be submerged. Therefore, we must think about towns floating in the sea. Let's aim to be people who can take action and consider global warming a serious problem for everyone.

Food Waste

These days, Japan has taken some measures for food waste. One convenience store introduced the full reservation system to sell Christmas cakes. After they started their system, the amount of food waste declined and the profit increased by 70%. Furthermore, a company was able to extend the expiration date by one day. Also, AI is involved in food waste. A factory of processed chicken products uses AI to identify chicken bones much better, so now they throw away much less edible part than before.

A Japanese food service chain store is taking three steps to reduce food waste. The first step is at their factory. They are working on recycling what they could not serve at the stores. For example, they use these foods as ingredients in some other dishes or as spices. The next step is transportation. By managing stock, food expiration does not occur. Finally, at the store, they check the data of the past, and predict how much food they need in a day to reduce waste. The company worked on this project for twelve days and succeeded in reducing food waste by 0.4 kilograms. So, if we continue doing these kinds of projects, the large amount of food waste will decrease. In this way, Japan is working on the problem of food waste in several ways.

About Plastic

Today, plastic waste continues to increase year by year. That is, by at least 8million tons per year. There are already 150 million tons of plastic waste in the sea, and by 2050 it is expected to grow to the same amount as fish in the sea. The plastic is mainly made from oil. It is easy to process and it is used for many things. Plastic takes a lot of time to decompose

naturally. So, recently, it has been broken down into particles and released into the sea, but many creatures are affected. For example, sea creatures have died and the number of endangered species has increased.

Therefore, various countermeasures are being studied. There are efforts to reduce the amount of plastic used. The Japanese government aims to reduce disposable plastics by a total of 25 percent. For example, now plastic bags are charged for in supermarkets and department stores in Japan. On the other hand, it has been decided that environmentally friendly shopping bags are free. Convenience stores agree with this decision, but supermarkets and department stores disagree with it. This system has some demerits. Firstly, bioplastic shopping bags cost twice as much as normal plastic bags. Secondly, it is difficult to determine how much bioplastic is contained in these bags. So, there is a possibility of false labeling. I think the stores should introduce those eco-friendly shopping bags positively even if they are expensive. Thus, we have a mission to think about the future of the earth, and we should take action positively.

Artificial Meat

Do you know about companies which deal with “artificial meat” in China? Artificial meat is food which imitates real meat. It is made from vegetables and bean protein. Why is it drawing attention in China? This is because an increase in the price of pork is related to the production of artificial meat. In August, 2018, the infection called classical swine fever was first confirmed in China. So, a lot of pigs were killed. Also, China and the United States are facing trade friction. Therefore, the price of pork is going up. Artificial meat can solve these problems. In addition, it can reduce greenhouse gases, which are emitted in the process of raising livestock. So, it will lead to stopping global warming. What is more, it has gained the support of the young generation because it is healthy. On the other hand, the problem is that livestock farmers will lose their jobs and that some people have a psychological fear or feel dissatisfaction with the taste of artificial meat. Based on these merits and demerits, we want to pay attention to how artificial meat will spread all over the world in the future.

Efforts by the Japanese Government and Advanced Technology by Private Companies

The Abe administration set a revised basic energy policy last year in which the percentage of renewable energy used will be increased to 20-24% in 2030. But it is far from exceeding the 40% target of the International Energy Agency. We have to say Japan's policy consciousness towards a sustainable society is low, among other developed countries in the world. The government's policy on greenhouse gases requires a new generation method to replace thermal power generation, which is responsible for most of Japan's current energy. Nuclear power generation was stopped by the influence of the Fukushima nuclear power plant accident, and the present situation is severe.

The Chugoku Electric Power Company, Incorporated is pioneering a new power generation method by combining nuclear power and thermal power to promote the operation of a power plant that significantly reduces the generation of greenhouse gases. Toshiba is developing technology to convert carbon dioxide into carbon monoxide that can be used as a chemical fuel by using electric power obtained from renewable energy such as photovoltaic power generation, and is conducting research aimed at increasing efficiency.

I think the policy adopted by the Japanese government policy is a little inferior to that of other developed countries, but some Japanese companies are researching and developing new technologies for reducing greenhouse gases, so I hope that Japan will be able to contribute to the wellbeing of the earth by using the ingenuity of the private sector.

Decreasing energy use

There are various effects of climate change such as the sediment disaster in Japan now. Especially in the area where we live, we suffered great damage due to a heavy rain disaster. Carbon dioxide generated during thermal power use is considered to be one of the factors that cause climate change.

In Hiroshima City, research on methods of generating electricity through renewable energy which does not generate carbon dioxide is being conducted. Our school also takes measures to help the environment including garbage separation. It is necessary to continue research on power generation using renewable energy in order to contribute to the mitigation of climate change.

First, to decrease energy use, the improvement of technology is essential, but we can't

improve technology dramatically. We need to take action to solve this problem in our daily lives. In our daily lives, we can take small measures. For example, we can turn the lights and air conditioners off when they are not being used. I think there are only a few things that we can do to decrease energy use, but they will have a big influence.

Also, we should emphasize the importance of decreasing energy use in our local communities, because each local community has a different environment and different needs.

Hiroshima City is working on the “Not using cars campaign”. This effort is undertaken on the second 12th and 22nd of every month. On these days, it is recommended to refrain from using cars as much as possible and to use public transportation such as trains, buses or walk. People who usually use cars try to use buses and trains on these days as much as possible. Global warming cannot be stopped unless we take various actions together.

Typhoons

In recent years, a lot of news about damage caused by typhoons is featured on Japanese TV programs. It was only two months ago that compact typhoon Faxai damaged the Kanto region, blowing off roofs and triggering massive blackouts in Chiba prefecture. Actually, it is said that the development of typhoons is related to global warming. The energy source that causes typhoons is heat, which is emitted when vapor evaporated from warm sea levels is condensed and becomes cloud droplets. Typhoons are likely to form when there is a lot of water vapor caused by the high temperature of seawater. Typhoons become huge when the amount of seawater evaporation increases and more and more water vapor exists in the atmosphere. To stop global warming, what we can do is not buy more than is necessary and choose something that doesn't become trash when we go shopping. For example, when we don't watch TV, we should unplug the TV. Also, we should carry our own bag with us when we go shopping. If we act with these things in mind, we can not only mitigate global warming but also prevent typhoons.

Forests

I will talk about the environmental importance of forests and what Japanese people do to mitigate global warming.

First, as to land forests, now about 30 % of the world's land is forests. Forest areas were reduced by about 5.2 million hectares from 2000 to 2010. Therefore, the risk of landslide disasters is increasing. Because of this problem in Japan, some people have started planting

trees on a voluntary basis. By doing it, forest areas will become larger. As a result, it will lead to stopping climate change.

Next, have you ever heard of sea forests? Sea forests absorb CO₂. For example, seaweed such as kelp and eelgrass absorb a lot of CO₂. In fact, a study shows that sea forests absorb as much CO₂ as land forests. Because of this, in Japan the Nippon Steel Corporation is working on the regeneration of the seaweed bed. In Japan, which is surrounded by the sea, expectations for sea forests are growing.

Of course, I think it is important for us to reduce displacement of CO₂, which is released from air conditioners or cars. However, I suspect that conserving forests which absorb greenhouse gases is important, too. So, we should act with consideration for the environment to achieve a sustainable society.

Australian Bushfires

In Australia, the weather is changing due to climate change. More pollution is being created from the burning of fossil fuels. Many companies and factories use fossil fuels for electricity. This has led to irregular weather. Since 2014, temperatures have increased by 1.5°C. Because temperatures have increased, there have been many bushfires in Australia. The bushfires are, of course, very dangerous. They have destroyed many houses and a lot of nature. Four people's lives have also been lost. In 2019, on the 23rd of January, in Adelaide, the temperature was 46.6°C. Also, on the 20th of November, St John's students were not allowed to attend school due to the hot weather. Before these incidents, people did not think climate change was a real problem. Now, people believe it is a real problem.

Government Action in Australia

In Australia, the government is only taking minor actions against climate change. They support coal mines, such as the Adani Coal Mine. If the government supports coal mines, more pollution will be produced. The government only partially supports energy alternatives, such as wind and hydropower energy production. The young people of Australia believe the government is not helping enough to protect the environment.

Climate Strike

In 2019 on the 20th of September, students gathered in front of the Government House in

Adelaide. Students did not go to school, and instead, fought for better climate change action. There were three actions that the students asked from the government. Firstly, Australia does not want any new fossil fuel projects, such as coal mines. Secondly, Australia wants to use 100% energy exports by 2030. Lastly, Australia wants to give new jobs to fossil fuel workers who are leaving their jobs.