Webinar on “Environmental Issues in Central Asia and Caucasus and the Role of Japan.”

Commemorating the 30th Anniversary of the Establishment of Diplomatic Relations between Japan and the Central Asian and Caucasian Countries
Central Asia + Japan" Dialogue, 7th Experts' Meeting
Report of Results

March 25, 2022

Kreab K.K.

Slavic-Eurasian Research Center, Hokkaido University

1. Details of Webinar

- Organizers: Ministry of Foreign Affairs of Japan, Slavic-Eurasian Research Center, Hokkaido University
- Date: Wednesday, March 16, 2022, 15:00-19:00 (Tokyo time)
- Venue: ZOOM webinar hosted from the International Conference Room of the Ministry of Foreign Affairs

(Only Ministry of Foreign Affairs and Secretariat officials, moderators, and keynote speakers met in person at the venue)

- Participants: 125 individuals (including 20 people from Japan and 8 from countries in Central Asia and the Caucasus, including the moderators and rapporteurs)

2. Outline of Keynote Speech

- Speaker: Yoshiko Kawabata (Associate Professor, Graduate School of Agriculture, Tokyo University of Agriculture and Technology)
- Title: Aral Sea Problem and Human Life
- The purpose of the keynote:

① Based on the speaker's experience as the conference organizing committee chair of the "Desert Technology XIV International Conference on Arid Land” (held in September 2021), the speaker discussed environmental problems and issues regarding arid lands. Global trends in environmental technology research were shared with researchers and practitioners from Central Asia and Caucasus countries.

② Based on the results and experiences of the speaker's research and studies on the Aral Sea issue over the years, the speaker provided an overall picture of the trends of environmental changes in the Aral Sea and its basin, the importance of the Aral Sea issue for the entire region, and the future commitment to the Aral Sea issue by related researchers and practitioners in Japan.

③ The speaker has been leading a project on tertiary agriculture in the sericulture (silkworm culture) sector in Uzbekistan under Japan's JICA Grassroots Technical Cooperation Project (Partner Type) scheme. The project is characterized by its contributions to the empowerment of communities, especially for women, in areas affected by environmental problems, and will provided material for discussion on the possibility of collaboration between Japanese scientists and local communities in Central Asian and Caucasian countries.

- Keynote Speech includes:

After describing the effects of climate change in the Aral Sea Basin in Central Asia (shrinking glaciers, increased droughts and floods; increased dust and damage to agriculture and health), the speaker discussed the characteristics of the Aral Sea water mass (chemical composition, correlation between calcium concentration and bio concentration mechanisms) and changes in biota (biota due to changes in plankton composition). She also shared the results of academic research conducted by the presenters on the impact of the project on the entire ecosystem. After reviewing the current status of the Aral Sea and its basin, the speaker expressed her view that agricultural practices that conserve water resources, cultivate high value-added crops, and prevent soil salinity accumulation are necessary to sustainably maintain both the environment and human life in the Aral Sea Basin. As specific examples of such practices, the speaker introduced the support for (1) medicinal herb cultivation, (2) tea cultivation, (3) sericulture, and (4) dried persimmon production in Uzbekistan. Regarding (1), the project aims to save water and increase farmers' income by artificially cultivating wild medicinal herbs, which are in danger of extinction due to overharvesting. Regarding (2), the report stated that in Uzbekistan, which imports 100% of its tea, Saitama Prefecture, which has a research institute for the cultivation of cold-weather tea varieties, and Maizuru, famous for its *kabusecha* (a class of Japanese tea leaf), are teaming up to introduce the cultivation of high value-added green tea. Regarding (3), JICA experts have been dispatched to Uzbekistan to introduce Japanese technology for the production of high-quality cocoons and silk yarns, and also to work with a local NGO to develop high value-added products from the beautiful "Atlas weaving" produced from silk yarns for the economic empowerment of women in the rural areas. Regarding (4), dried persimmons do not exist in Central Asia, but the project aims to support the creation of value-added products from inexpensive persimmon, which are cultivatable in large quantities. Each of these projects is unique in that they create high value-added products while taking into consideration the local environment and water resources, and in that they

will lead to increased income for local residents, and we can expect further sustainable development in the future.

3. Summary of Session Reports

3. 1. Session 1: "Water, Soil and Society in Central Asia and the Caucasus

- Purpose and Intent of the Session

① In Central Asia and the Caucasus region, environmental problems resulting from poorly-planned Soviet-era water development remain serious. It is clear that the Aral Sea disaster is one of the worst anthropogenic ecological disasters in the world. Soil degradation and salinity caused desertification in abandoned lands and grasslands. Today, in the context of "human security," emphasis is being placed on the relationship between "water, energy, and food," and it is necessary to get a complete picture of water-related environmental problems across borders and throughout the region.

② Through technical and academic partnerships and cooperation with international organizations and donor countries, the countries of Central Asia and Caucasus region have taken various measures to address water-related environmental issues, such as introducing water-saving technologies, improving water efficiency in irrigation and drainage channels, organizing water user groups, and monitoring soil and vegetation in agricultural land. It is necessary for the Japan side to understand the needs of the Central Asian and Caucasian countries in the field of water environment and the overall picture of the measures already implemented. On the other hand, it would also be useful for the Central Asian and Caucasian countries to understand the scientific and technical knowledge and know-how that the Japanese side can provide. So far, JICA and prominent Japanese universities have implemented various projects in the fields of water management, soil protection, and hydro-meteorological observation through ODA technical cooperation, Science and Technology partnership for Sustainable Development（SATREPS), and Japan Society for the Promotion of Science (JSPS) grant aids.

- Moderator: Tetsuro Chida (Associate Professor, Faculty of Global Studies, Nagoya University of Foreign Studies / Collaborative Researcher, Slavic Eurasian Research Center, Hokkaido University)
- Reporters:

  Japan - Yoshiya Touge (Assistant Professor, Graduate School of Engineering, Tohoku University)
  Uzbekistan - Shavkat Usmanov (Head of Research Laboratory, Institute of Irrigation and Water Problems)

Kazakhstan – Marat Narbayev (Deputy Director General, The Executive Board of the International Fund for saving the Aral Sea in the Republic of Kazakhstan)

Turkmenistan - Rosa Berkeliyeva (Chief Specialist, Institute “Turkmensuwylymtaslama” of the State Committee for Water Management of Turkmenistan)

- Commentator: Kenji Tanaka (Associate Professor, Disaster Prevention Research Institute, Kyoto University)

- Report Summary

① Report by Touge (Japan): "Developing Hydrological Model in the Aral Sea Basin considering Human Impact and Climate Change”

The presenter, who specializes in hydrology, examines how human activities (irrigation) and climate change in the Aral Sea Basin have led to a break in the equilibrium of the Aral Sea water cycle and its reduction, using the "terrestrial water cycle model" of hydrology, especially the "land surface process model SiBUC (Simple Biosphere including Urban Canopy)". In order to measure the specific impact of human activities on the water cycle, as well as within the simulation model, changes in soil moisture content were measured at three irrigated farmland sites in Uzbekistan under different natural conditions to estimate irrigation frequency and water consumption, which were then incorporated into the model. This made it possible to identify the amount of water needed for cotton irrigation under natural conditions, and the results of the simulation matched the shrinkage and trend of the Aral Sea (the model is currently being further refined). Then, considering the amount of water resources and water demand in the future, it is predicted that the amount of water resources will remain almost the same in the future, but the amount of water demand will increase, especially for the lower Amu Darya River basin, which will require increased irrigation frequency as the temperature rises, resulting in a significant increase in t water demand. Finally, in order to correct the "hydrological observation gap" that exists in the world today in terms of future observation of climate change, he introduced an experimental effort to set up an inexpensive meteorological observation station.

② Report by Usmanov (Uzbekistan): "Questions of environmental problems associated with water and soil and their impact”

Despite its extensive irrigated agriculture, Uzbekistan depends on foreign countries for 80% of its water resources, and has been experiencing droughts for the past several years. In addition, more than 90% of Uzbekistan's water resources are used for agricultural purposes. Compared to the Soviet era, restrictions on water withdrawal have been introduced and raised by about 20%, and the amount of water used for irrigation is also decreasing. In terms of climate change factors, there is a trend toward higher temperatures and lower precipitation. And with the increase in population, the demand for water is increasing throughout the basin, including in Afghanistan. As a result, water use per capita in

Uzbekistan has been decreasing and is expected to continue to do so. At the same time, there are various factors putting pressure on water resources, including human factors such as inefficient use of water resources and salinity damage in agricultural lands due to inadequate irrigation and drainage systems, as well as frequent droughts and floods due to climate change. The government of Uzbekistan is also taking measures to address these issues by creating a strategy for the development of the irrigation and water use sectors. After delivering the report, a proposal was made on the possibility of implementing joint projects with Japan (e.g., tea cultivation, rice cultivation, etc.).

③ Report by Narbayev (Kazakhstan): "Developing the potential of sub-regional cooperation to ensure resilience to climate change and natural disasters in the Aral Sea Basin to climate change and natural disasters in the Aral Sea Basin"

The desertification and ecological destruction that will accompany the shrinking of the Aral Sea are well known, but it is almost certain that the Aral Sea Basin countries, especially those in the middle and lower basin, will face freshwater shortages by 2030, even more so in light of the population growth trends in these countries. Water resources are also important from the perspective of power supply and food security. In addition, half of the irrigated farmland in the Aral Sea Basin suffers from salt damage, which requires large amounts of water in order to reach the farmland itself, and is a factor that puts a strain on water resource demand. Degradation of agricultural lands, including salt damage, is a cause of desertification. In addition, many agricultural drainage channels drip into desert depressions, which has also become a factor in the wasteful use of water resources. Climate change is closely linked to drought and desertification, and dust storms from the bottom of the old Aral Sea lakes play a role in accelerating the melting of glaciers. The future depletion of glaciers is expected to lead to a shortage of water resources throughout the region. Together, these factors are causing enormous economic damage to the region. Thus, the presenter gave a general introduction to the issues surrounding water and soil throughout the Aral Sea Basin. He then argued that it is essential to implement measures to address these problems on a regional basis rather than on a country-by-country basis, and that something akin to economic integration and common naming among the basin countries is needed. In the agricultural sector, it is necessary to expand the cultivation of crop varieties that are more resistant to droughts, and to promote the use of automated technologies in irrigation. In the industrial sector, water-saving technologies and water recycling systems need to be introduced, as well as technological innovations to improve water use efficiency in water supply and better sewage systems. Improvements in hydrometeorological observation systems are needed in general. The need for financial support from donors to implement these measures was stressed.

④ Report by Berkeliyeva (Turkmenistan)

The report provides a comprehensive description of the efforts of the State Water Board of Turkmenistan and its affiliated Turkmen Scientific Project Institute for Water Use in Turkmenistan,

including water resources management and use, irrigation, desalination and water purification, groundwater use, and climate change countermeasures. In the development of the Turkmen "Golden Century" Lake, a network of drainage channels has been established and agricultural wastewater is collected in the lake. The reuse of agricultural wastewater is a necessity for Turkmenistan, a country with scarce water resources, and water equivalent to brackish water with salinity up to 3 mg/l can be used for irrigation again. Modern agricultural wastewater purification technology is needed for this purpose. For instance, the covering of irrigation canals with filters can save 50% of water resources and improve yields by about 40%. Soil improvement in desertified lands, including the fixing of sandy soil, is also being carried out under a government initiative. The government of Turkmenistan has formulated the "Aral Sea National Program for 2021-2025" and is working to improve the environmental, social, and economic conditions in the Aral Sea region on the territory of Turkmenistan (north). It is also working on the cultivation of medicinal plants in cooperation with neighboring countries.

- Commentator's remarks:
  - Tanaka (Japan) commented:

    An introduction about SATREPS project "Climate Resilient Innovative Technology Development for Water Use Efficiency and Salinity Control in the Aral Sea Region", of which Tanaka is a representative. Development of Innovative Climate Resilient Technologies for Monitoring and Controlling of Water Use Efficiency and Impact of Salinization on Crop Productivity and Livelihood in Aral Sea Region; abbreviated as “BLUE Project”). The objective is to establish a crop rotation cycle system that enables sustainable agriculture while utilizing saline plants. Using satellite monitoring technology, data on daily changes in various natural environmental conditions will be collected and published not only for Uzbekistan but also for the surrounding areas. Stakeholder meetings will be held to discuss medium- and long-term livelihood options with the local population, taking into account not only short-term but also climate change projections. In addition, the project will consider various ways of saving water in preparation for the coming period of tight water resources due to the depletion of glaciers.
  - Question from the Moderator:

    Currently, the Aral Sea Basin is experiencing a drought year, and I have heard that the drought was particularly severe in the Aral Sea region on Kazakhstan's territory. What is the situation? And we have heard from Uzbekistan about the possibility of specific cooperation with Japan, but what about the other two countries?

    ① Response from Narbayev (Kazakhstan): Very important point. We are in a drought cycle year and it could last for the next 10 years. The situation is serious. A lot of things are being reviewed, including shifting crops to crops that do not require much water.

② Response from Berkeliyeva (Turkmenistan): I agree with the presenter from Kazakhstan. The entire region must work together to save water. We will focus on the direction of rational use of water and also on the direction of desalination of salt water.

➢ Other Japanese researchers asked academic questions to Touge's report via chat (e.g., the satellite used in the analysis, the impact of short-term glacier melt on the hydrological model, the impact of population growth, and the incorporation of factors such as crop types and irrigation methods in SiBUC, etc.). In response to this, Touge and Tanaka also responded via chat.

・Q&A on chat

✧ Q: The simulation showed no change in the amount of water resources in Central Asia. I thought that the melting of upstream glaciers due to global warming would lead to an increase in water resources in the short term and a decrease in water resources in the medium to long term.

A: I think this is a very important point. My current calculations do not take this into account, and it has been a research issue. We have been working to improve the model, including the accuracy of hydrological processes in mountainous areas. Kyoto University also conducts observations on glaciers. We consider this an important point and hope to be able to report on it in the future.

✧ Q: In your simulation, you used the water content of the soil to determine the amount of water resources needed for irrigation, but is there any kind of flow meter in the current irrigation facilities that can determine the amount of water used? If not, how effective would it be in terms of environmental management if a flow meter were installed?

A: We think this is also an important point for verification and improvement of the model. I believe that some agricultural districts do keep track of the amount of water withdrawal, but I have not been able to use this information for validation in my analysis. I believe that understanding water withdrawals is highly effective for environmental management, both in terms of monitoring and in terms of validation of numerical analyses such as mine.

✧ Q: Regarding SiBUC, you mentioned that it will reflect the impact of irrigated agriculture. Are there any differences in the values considered in the model depending on the crop type (cropping system, growth conditions, evapotranspiration, etc.)?

A: As you mentioned, the minimum soil moisture value and irrigation rules differ depending on the crop type. As a result of changing those parameters, evapotranspiration and irrigation water requirements will change. The current analysis assumes that all of the irrigated land is cotton, and that is a challenge for the analysis.

- ✧ Q: Regarding SiBUC, you mentioned that the model will reflect the impact of irrigated agriculture. Are there any differences in the values considered in the model depending on the crop type (cropping system, growth status, evapotranspiration, etc.)?
  A: The irrigation model can handle multiple irrigated croplands, but it is very difficult to establish reliable cropping information (and its historical evolution), which is an issue to be addressed in the upcoming BLUE Project.
- ✧ Q: Do you take into account population changes in the region when estimating water use?
  A: As you mentioned, population changes in the region are reflected in the analysis as changes in irrigated area. Although it is possible that there may be an increase in industrial and domestic water supply due to population growth, it is not taken into account in this analysis because it is less than that for agricultural use, and also because we believe that a large portion of the water is returned to the river as sewage.

3.2 Session 2: Climate Change and Sustainable Future of Mountain Environment

- Purpose and Intent of the Session:

① The Central Asia-Caucasus region is surrounded by rugged mountainous terrain, including the Tian Shan Mountains, the Pamir Plateau, the Kopet Dag Mountains, and the Greater and Lesser Caucasus Mountains. Shrinking glaciers due to climate change have an extremely significant impact on the entire region in terms of water resources and the social and economic development of each country. This session shared the results and future projections of the latest glaciological and mountain environmental research on the effects of climate change in the mountainous regions of Central Asia and the Caucasus.

② In addition to shrinking glaciers, there are other environmental problems unique to mountainous regions that are not well known in Japan. These include the collapse of glacial lakes due to the accumulation of melt water, cliff collapses and landslides, the destruction of mountain grasslands due to overgrazing, and the decline of flora and fauna due to overhunting of wild animals. In this session, we discussed the future of sustainable mountain environments by sharing scientific and technical knowledge on mountainous areas in Central Asia and the Caucasus that had been accumulated by academics and practitioners from Japan and Central Asia/Caucasus countries.

- Moderator: Tomohiko Uyama (Professor, Slavic Eurasian Research Center, Hokkaido University)
- Reported by.

  Japan - Chiyuki Narama (Faculty of Science, Niigata University)
  Armenia - Shushanik Asmaryan (Deputy Director for Science, National Academy of Sciences of the Republic of Armenia, Center for Ecological-Noosphere Studies)

Kyrgyz - Esentur Jamalov (Deputy Director, Climate Finance Center attached to Ministry of Natural Resources, Ecology and Technical Supervision)

Kyrgyz - Azat Osmonov (Director, Protection of Biodiversity and Development of special nature preserve Division, Protection of Biodiversity and Special Nature Preserve Department, Ministry of Natural Resources, Ecology and Technical Supervision)

Tajikistan - Kamoliddin Nazirzoda, (Deputy Head, Glaciology Center of the Agency for Hydrometeorology/Committee of Environment protection under Government of Republic of Tajikistan)

- Commentator: Fumiaki Inagaki (Faculty of International Resources, Akita University), Hideki Tanabe (Deputy Director, East and Central Asia Department, Japan International Cooperation Agency)

- Report Summary

① Report by Narama (Japan): "Current situation of glacial lake outburst flood (GLOF) in Central Asia

The reporter has conducted GLOF surveys in the Eastern Himalayas (Bhutan and Nepal), Western Himalayas (Ladakh, India), and Tianshan (Kyrgyz). Overall, glaciers in the high mountain belts of Asia are shrinking. As a result, numerous glacial lakes of various sizes have formed, and the moraines that dam them can break, causing major disasters in the downstream areas. In Central Asia, many small glacial lakes have formed, but the damage caused by their breakdown is unexpectedly large, and since the beginning of the 2000s, disasters caused by GLOFs have been frequent, resulting in deaths. The glacial lakes in Central Asia are of the "short-lived glacial lake" type, which form in a few months, and repeatedly break up and form. In semi-arid regions, people tend to live along rivers, which increases the damage caused by GLOFs. In comparison, glacial lakes in the Himalayas are large, but once they break, they rarely expand again. People's settlements are also far away from glacial lakes, so they are less likely to cause major damage. It is not realistic to take countermeasures against short-lived glacial lakes through the development of hard infrastructure, but it is important to take soft measures such as monitoring the glacial lakes and developing a system for communicating information to the residents. The presenter has conducted glacial lake workshops with local residents in both Kyrgyz and Ladakh, India, and realized the importance of measures based on an understanding of the different political cultures, customs, and ways of thinking in each region.

② Report by Asmaryan (Armenia): "Remote sensing technology for monitoring the dynamics of mountain ecosystems in the context of climate change in Armenia"

The presenter's area of expertise, remote sensing technology, is to describe the effects of climate change on vegetation in mountainous regions of Armenia, focusing on changes in the Normalized Difference Vegetation Index (NDVI), which is a measure of the amount of vegetation that can be

grown in a given area. The report explains the correlation between observations in the Syunik district of southern Armenia and indicators such as NDVI, precipitation, and temperature of mountain vegetation, and the effect of precipitation on vegetation. The presenter's organization has been participating in intergovernmental meetings in the field of earth observation using remote sensing technology, and has cooperated with various Japanese organizations and expressed a desire to deepen the cooperation in the future.

③ Report by Jamalov (Kyrgyz)

The content of the report is to explain how Kyrgyz participates in the international mechanisms of combating global climate change, mainly the United Nations Framework Convention on Climate Change (UNFCCC), and what its goals are. In May 2021, a national ecology and climate commission was established in Kyrgyz. In October 2021, at the UNFCCC COP26 meeting in Glasgow, UK, President Zhaparov declared the achievement of carbon neutrality by 2050 and called for green growth and lowered greenhouse gas emissions. He stated clearly that the goal is to achieve reductions in effective gas emissions. To achieve this goal, he said, it is important to develop hydroelectric power plants as a power source. Kyrgyz will strive to become an exporter of clean energy, especially hydropower, and the ministry to which the reporter belongs is committed to this goal. The presenter concluded by pointing out that the possibility of cooperation with Japan in the development of low-carbon industrial infrastructure, sustainable forest management, and climate change countermeasures is open for consideration.

④ Report by Osmonov (Kyrgyz): "Glacier condition and mountain ecology"

The content of the report was to provide basic information on glaciers in Kyrgyz. In Kyrgyz, glaciers occupy 4.2% of the total land area, and although the number of glaciers is increasing, their area and capacity are decreasing. The presenter presented an overview of glacier communities such as Alai Ridge, Kyrgyz Ridge, the northern foothills of Kakshaal Too, the Dzhangak river basin, Sary-Jaz Basin, and Talas Ridge, as well as large glaciers in the country, and argued that the mechanisms of glacial lake formation and efforts to incorporate glaciers into nature reserves are necessary.

⑤ Report by Nazirzoda (Tajikistan): "Climate Change and its Impact on the Mountain Environment of Tajikistan" (Изменения климата и его влияние на горную среду Таджикистана)

The report is a comprehensive summary of the reality of climate change in the mountainous country of Tajikistan, its negative impacts, and measures taken by the government. Tajikistan's climatic characteristics are characterized by a landlocked climate, but with a large difference in elevation, which creates complex and sometimes localized climatic zones. Rainfall in some areas, such as the eastern Pamir Plateau, is about 100 mm per year, while in others, such as along the Vakhsh River valley, it is 500 to 600 mm, and in still others, such as the Fedchenko Glacier area, it reaches 2,000 mm per year. One effect of climate change is a vicious cycle in which rising temperatures promote melting of

glaciers (small glaciers disappear), which in turn triggers further increases in temperature. These induce increased precipitation and heavy rainfall around glaciers, which can cause avalanches, landslides, landslides, and sudden floods that can cause serious damage to people's housing and social infrastructure. Tajikistan's population is growing rapidly (1.5 times in 20 years), and residential areas are expanding at a faster rate, making them more vulnerable to damage from natural disasters. In response, the government of Tajikistan has also developed a law on climate change, policy documents such as the National Action Plan on Climate Change Damage Reduction, the National Strategy on Climate Change Adaptation until 2030, the National Strategy on Natural Disaster Risk Reduction from 2019 to 2030, etc.), the Hydrometeorological Agency and the Climate Change Research Center. The government is trying to respond by developing organizations such as the Center, conducting weather observations in mountainous areas as well as glacier monitoring, and by working closely with international fora such as the UNFCCC and the IPCC (Intergovernmental Panel on Climate Change).

- Commentator's remarks:

➢ Inagaki (Japan) commented:

An overview of the SATREPS project "Establishment of a Decarbonized Thermal Energy Supply System Using Geothermal Heat (ITAG-SATREPS)" (FY2021-2026), of which Mr. Inagaki is the representative. The objective of the project is to improve the supply of thermal energy in Tajikistan, especially in rural areas outside of Dushanbe, the capital city, where electricity supply is inadequate. The objective is to generate surplus electricity by utilizing geothermal heat pumps, an energy-saving technology, and distribute it to regions outside the capital. The group is structured with an eye not only to technology, but also to social implementation, including the development of legislation.

➢ Tanabe (Japan) commented:

Comments across sessions 1 and 2. Environmental problems in Central Asia are extremely diverse, and many of them straddle national borders, so they are not problems that can be solved by one country alone. Moreover, a long-term approach is needed. There are many difficult issues that require cooperation among various nations and fields. International cooperation in this field is necessary, and Japan can play a catalytic role in encouraging cooperation among countries.

4.3 Session 3: Japan - Central Asia and Caucasus cooperation: Regional Potentials of the Joint Crediting Mechanism

- Purpose and Intent of the Session

① In recent years, from the perspective of evolving global warming countermeasures, a worldwide shift from fossil fuels to clean energy sources such as renewable energy is underway. In October 2021, Japan declared "carbon neutral by 2050." The world has entered an era in which global warming is no longer regarded as a constraint or cost to economic growth, but rather an

opportunity for growth. Under such recognition, Japan has promoted relevant measures including the Green Growth Strategy with a view to creating a "virtuous cycle of the environment and growth."

② With respect to climate change, there are expectations expressed among government officials of countries in Central Asia and Caucasus regions for Japan's climate change policy and the potentials for cooperation on the area of de-carbonization including through the utilization of a Joint Crediting Mechanism (JCM). In the light of such development, it would be regarded as beneficial to discuss Japan's climate change policy and potentiality of cooperation in the area of de-carbonization among governments of both countries and Japanese companies.

- Moderator: Yoshinori Takeda, Director, Central Asia and Caucasus Office, Ministry of Foreign Affairs
- Reporters:

  Japan - Tomonobu Sato (Deputy Director, Climate Change Division, Ministry of Foreign Affairs)

  Japan - Maiko Uga (Section Chief, Office of Market Mechanisms, Climate Change Policy Division, Global Environment Bureau, Ministry of the Environment, Japan)

  Japan - Masami Ishihara, (Senior Manager, Global Environment Centre Foundation)

  Georgia - Maia Tskhvaradze (Head of Climate Change Division, Ministry of Environmental Protection and Agriculture)
- Commentator.

  Japan – Koji Takahashi, (Assistant Director, Office of Global Environmental Coordination, Industrial Science and Technology Policy and Environment Bureau, Ministry of Economy, Trade and Industry)

  Azerbaijan - Rovshan Jafarov, (Counselor, Embassy of the republic of Azerbaijan in Japan)

- Report Summary

① Report by Tomonobu Sato (MOFA, Japan)

The report outlines major developments on climate change policy in international fora as well as efforts by the Government of Japan from last and this year and it introduces the overview of the Joint Crediting Mechanism (JCM) promoted by the Government of Japan, with a view to inviting discussions on the JCM's potentiality in Central Asia and Caucasus regions

② Report by Maiko Uga (MOE, Japan): "Recent development of the JCM"

The contents explained the basic concept of the JCM, the financial support menu for projects by the Ministry of the Environment (MOE), and examples of specific projects supported by MOE and their contribution percentage in each sector. The JCM is included in the Plan for Global Warming Countermeasures and contributes to achieving our GHGs emission reduction targets. The JCM aims

to facilitate the diffusion of leading decarbonizing technologies, etc., and contribute to sustainable development. It is a scheme in which Japan and partner countries establish a partnership, under which private companies participate to promote emission reduction projects. Mitigation activities implemented in partner countries will be quantitatively evaluated, and the contribution from Japan will be appropriately assessed. The quantitatively assessed reductions (carbon credits) will be shared among stakeholders in proportion to their contributions. The JCM is implemented consistent with the rules of Article 6 of the Paris Agreement, which was agreed upon at COP26 in November 2021. The project cycle of the JCM is similar to that of the Clean Development Mechanism (CDM) under the Kyoto Protocol, as Japan has participated in CDM projects in Armenia, Georgia, and Uzbekistan. The JCM project support groups includes (1) the JCM Model Project (subsidy for equipment), which has the largest budget; (2) the Asian Development Bank (ADB) Trust Fund (sovereign and non-sovereign projects); and (3) the hydrofluorocarbons (HFCs) recovery and destruction model project (although the budget is smaller compared to other support,, it includes support for establishing a recovery and destruction scheme). The following presenter explains more about (1). MOE has supported many kinds of projects, but half of the projects are related to renewable energy.

③ Report by Masami Ishihara (GEC, Japan): "Bilateral Project Equipment Subsidy Projects and Contributions to Sustainable Development Goals" (The JCM Model Projects and Contributions to SDGs)

The content of the report was an introduction of actual examples of the JCM Model Projects utilizing the financial support programme mentioned in Uga's report. The application period for FY2021 was set from April to October, but closed at the end of September due to the availability of the budget, as the large number of quality projects applied. The budget is expected to increase in FY2022, and the call for proposals for FY2022 is scheduled to begin in April on the Foundation's website. In the 17 countries where projects have already been implemented, most of the projects are renewable energy and energy conservation projects, but a wide variety of projects have been formed. The projects are formed by Japanese private companies, and are eligible for projects to be implemented overseas. Up to 50% of the cost of introducing advanced decarbonization technologies will be covered, with a maximum of 40% for sectors that have introduced 1-3 projects by country or sector, and 30% for sectors that have introduced 4 or more projects. Overall, the majority of projects are in the Southeast Asia region. Inside the report, specific details of projects in Viet Nam,Thailand, the Philippines, and Cambodia were also presented.

④ Report by Tskhvaradze (Georgia)

This was a description of Georgia's climate change measures, including the content of Georgia's Nationally Determined Contribution (NDC), and a comprehensive description of Georgia's position and readiness at this stage regarding the use of the Carbon Market Mechanism. Georgia joined the UNFCCC and endorsed the Kyoto Protocol, but distanced itself from the 2009 Copenhagen Accord,

but endorsed the 2015 Paris Agreement and submitted an NDC; developed a national program on the Green Climate Fund in 2017 and in 2021 a national climate change until 2030 For the NDC, the unconditional GHG reduction is 35% by 2030 compared to 1990, and 50-70% reduction with conditions. However, more ambitious targets may be set depending on the international environment, and measures are being taken to review not only the overall reduction indicators but also the seven sectoral mitigation targets, and to strengthen areas that were left out of the NDC. On the adaptation side of climate change, the focus will be on sectors such as mountain ecosystems, water resources, forests and biodiversity, local weather events, tourism, agriculture, and insurance. Regarding Article 6.2 of the Paris Agreement, the Swiss government is cooperating with the private KLK Click Foundation, which is currently in the phase of enacting a legal framework in Georgia. To ensure that there are no mistakes in carbon market transactions, the MAAP-ITR (Mitigation Action Assessment Protocol International Transfer Readiness) Tool has been adopted and the scope of the carbon market has been defined. In close cooperation with Switzerland, Georgia is preparing for the future of the carbon market. Basically, Georgia considers itself a "seller" in the carbon market and would like to take various actions in consultation with buyers. The country will consider what kind of activities are possible according to the bilateral agreements of each partner country, including Switzerland and Japan. The country is still trying to determine which sectors will be most fruitful. The priority sectors are energy, transportation, and waste.

- Question from the floor: Is it possible to assess the impact of climate change within the framework of the "Central Asia + Japan" dialogue through the provision of cutting-edge Japanese research?
  - Uga's Answer: My office (Office of Market Mechanisms) deals with mitigation projects and carbon pricing. In the Ministry of the Environment, it is under the jurisdiction of the Office of Global Environment and Decarbonizing Innovation Research. I would like to hear any thoughts on this from the Ministry of Foreign Affairs or JICA.
  - Takeda's answer: I agree with the sharing of Japan's research results and advanced technologies, and I think it is important to deepen the exchange of views with the countries of Central Asia and the Caucasus, and to deepen understanding of the JCM as one tool to achieve the goals shared between the public and private sectors and between the government and the private sector, so that we can move to the next stage. We believe that it would be good if we could set a direction for the future.
- Commentator's remarks
  - Takahashi (METI, Japan) commented: METI is also involved in the JCM project support and provides subsidies to Japanese companies for conducting feasibility studies. In terms of the finalization of the JCM project, it is being implemented in the form of a consignment project to

the New Energy and Industrial Technology Development Organization (NEDO). NEDO's subsidies focus on the introduction of advanced technologies and are distinguished from MOE's projects, so private companies can choose the scheme according to the characteristics of their projects.

- Jafarov (Azerbaijan) commented: I am satisfied with bilateral relations between Japan and Azerbaijan, but it is important to go to the next level. Japan has achieved a high level in the field of renewable energy, and Azerbaijan has also made considerable efforts in this area. Azerbaijan would like to have 30% of its power generation from renewable energy sources by 2030. We are grateful for the cooperation and relations with Japan and hope to make progress in this area.

4. Suggestions after the Webinar

The potential for cooperation between Japan and Central Asian countries on dryland agriculture and water use remains relatively high, as can be seen from the development of the SATREPS BLUE project. At the same time, the projects themselves tend to be concentrated in Uzbekistan, and the question would be how to expand the cooperation not only to SATREPS but also to other countries in Central Asia and the Caucasus region through JICA's technical cooperation schemes and other means.

- JICA's grassroots technical cooperation schemes, such as the one implemented by keynote speaker Dr. Yoshiko Kawabata, are highly beneficial because they involve direct communication with NPOs and local residents, allowing the needs of local residents to be incorporated into the projects. The primary focus is to nurture and network with the people who will be responsible for the project following Dr. Kawabata's lead. The issue is to create a mechanism for this purpose (Ministry of Foreign Affairs, JICA, NPOs, researchers, etc.). Another issue is fostering and networking with the people who will be responsible for the project, following Dr. Kawabata's lead.
- As for research on environmental issues in mountainous regions, as shown in the Narama Report and Inagaki's comments, cooperation by researchers and practitioners has been accumulating in Central Asia, but there is ample space for cooperation in the Caucasus region. It is necessary to survey the needs of the region through the Ministry of Foreign Affairs and JICA, and to set up a matching mechanism.
- All of the Central Asian and Caucasus countries have a strong interest in green technologies for fossil fuel removal and decarbonization. While there are differences that vary from country to country, the interest in and need for a JCM-like program is generally the same throughout the region. The problem is largely one regarding the basis private companies on the Japanese side in implementing them. If this is to be done in earnest, it will be necessary

to deepen cooperation with Japan Association for Trade with Russia & NIS (ROTOBO), JETRO, and the Bilateral Economic Committees to market the program.