

# **Chair's Summary**

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The Global Environmental Action (GEA) International Conference 2020: “Integration of the Environment and Economy: Towards a Virtuous Cycle of Environment and Growth” was convened in Tokyo on 14 and 15 December 2020.

This conference was organised by GEA and co-convened by the Government of Japan (Ministry of Foreign Affairs; Ministry of Education, Culture, Sports, Science and Technology; Ministry of Agriculture, Forestry and Fisheries; Ministry of Economy, Trade and Industry; Ministry of Land, Infrastructure, Transport and Tourism; Ministry of the Environment). The aim of the conference is to clarify the critical state of the global environment and disseminate to the rest of the world key recommendations from the conference for realising a virtuous cycle of environment and growth, while overcoming the COVID-19 pandemic.

## **1. Opening Ceremony**

In attendance of Their Majesties the Emperor and Empress, the conference began with an opening speech by GEA Chairman TAKESHITA Wataru, an address by His Majesty the Emperor, and a guest speech by Prime Minister SUGA Yoshihide. This was followed by a keynote speech by UN Environment Programme Executive Director Inger ANDERSEN and a commemorative speech by Asahi Kasei Honorary Fellow YOSHINO Akira (2019 Nobel Laureate in Chemistry). The Chair of GEA International Conference 2020 was TAKEMOTO Kazuhiko, Visiting Professor at the UNU Institute for the Advanced Study of Sustainability (UNU-IAS) and Project Professor at the University of Tokyo.

### **Opening Speech**

In his opening speech, GEA Chairman TAKESHITA Wataru expressed his gratitude for being able to convene this year’s conference while prioritising measures to prevent COVID-19 risk. He also expressed his hope that experts taking action on the global frontlines and GEA Members will engage in active discussion, and that insights from these discussions could contribute to thrusting international discourse that definitively advances the Paris Agreement. Moreover, while aiming toward resolving global environmental issues, he expressed his expectation that people who respect the diverse cultures of countries around the world will play an active role in the future.

### **His Majesty the Emperor’s Address**

His Majesty the Emperor gave his address. His Majesty expressed that paving the way for conserving the global environment from climate change and other threats is a challenge for which we must take immediate actions. His Majesty also stated that this conference is an invaluable opportunity to gather the global wisdom and foster cooperation between people from different countries and backgrounds, to move forward towards creating a sustainable society. His Majesty highlighted that 2020 is an important year that marks the start of the Decade of Action to implement the Sustainable Development Goals (SDGs) and the beginning of implementing the Paris Agreement to tackle climate change, and that today, as the world is expected to make substantial progress on

initiatives to meet these goals, how every individual should act to achieve the future we want is called into question. Then, His Majesty expressed hope for convening active discussions toward realising a future where people—we, our children, and grandchildren—and all living beings can enjoy the gifts of the global environment for a long time, as well as sharing key messages with the world. At the same time, His Majesty hoped that we can overcome the challenge of the COVID-19 pandemic, and make further progress on specific measures toward realising a sustainable society.

### **The Prime Minister’s Guest Speech**

Prime Minister SUGA Yoshihide emphasised that global environmental issues, such as the climate change impacts already being experienced, are becoming formidable threats to the international community and that bold action from all countries is essential. With respect to his declaration to achieve carbon neutrality by 2050 in his policy speech in October 2020, he stated that this is a goal that Japan must achieve in order to catch up to global trends and stay a step ahead. He expressed his view that addressing environmental issues does not constrain economic growth, but rather supports the transformation of the entire economy and society, generating great growth. To transform the way of thinking toward a virtuous cycle of the environment and economy, he announced that a two-trillion yen fund will be established as part of the third supplementary budget of FY2020, which will continuously support companies that are taking on the challenge of developing ambitious innovations for the next 10 years. Moreover, he stated that the Global Zero Emission Research Center, established in January this year and led by its General-Director Dr. YOSHINO Akira, will lead the world’s green industries and create a virtuous cycle of the economy and environment through highly practical research and development. He also mentioned that, to realise the Osaka Blue Ocean Vision shared at the G20 Osaka Summit last year and currently endorsed by 86 countries, Japan will be providing developing countries with technical assistance, aiming toward reducing additional pollution by marine plastic litter to zero by 2050. To conclude, stating that leaving a beautiful earth to the next generation is the responsibility of all living people today, he expressed his high hopes for fruitful and active discussions toward simultaneously addressing environmental, economic, and social issues at this conference.

### **Keynote Speech (Video Message)**

Ms. Inger ANDERSEN, Under-Secretary-General of the United Nations (UN) and the Executive Director at the UN Environment Programme (UNEP) thanked Japan for announcing a two-trillion yen economic policy to combat climate change as part of its COVID-19 recovery effort, emphasising that this will pave the way for achieving net-zero emissions in Japan and that this is the leadership that the world needs. She stated that the global COVID-19 pandemic is illustrative that the three global crises (the climate crisis, crisis for biodiversity and nature, and the crisis of pollution and waste) have not been addressed, and that the critical challenge of this century is “to be at peace with nature” (see Appendix 1 for details).

Additionally, she expressed that Japan can lead efforts to tackle the three crises through actions in the following areas:

- ① Green technology: By promoting and disseminating research and development in renewable energy and other core technologies, she stated that Japan can accelerate progress on achieving

policy targets to conserve nature.

- ② Circular economy: Japan has been taking action on circular economy since 1991, and has the technology, creativity and knowledge to transform the economy while reducing resource consumption.
- ③ Sustainable infrastructure: Sustainable infrastructure solutions must be prioritised to address all three crises, and that Japan is already taking a leading role within the G20.

Moreover, she stated that 2021 must be the year when we “flip the green switch” and pave the way for global sustainability. She expressed her confidence that Japan can play a leading role to create this path toward a better future for the world.

### **Commemorative Speech**

Asahi Kasei Corporation Honorary Fellow and 2019 Nobel Laureate in Chemistry, Dr. YOSHINO Akira delivered his commemorative speech, in which he introduced scenarios toward realising a sustainable society through the use of lithium-ion batteries. Most applications of lithium-ion batteries today are for electric vehicles (EVs), and EVs are projected to make up roughly 15% of all new vehicle sales in 2025. Given this projection, he pointed out that, to achieve a sustainable society, it is necessary to further disseminate EVs and the environmental aspects, affordability and convenience must harmoniously improve. While this seems unachievable at first glance, he emphasised that innovation can make this possible and that it would be necessary to envision a “car society” beyond 2025, given significant technological transformations such as AI, IoT, and 5G. He suggested that if applications of Connected-Autonomous-Shared-Electric (CASE) and Mobility as a Service (MaaS) are deployed, then the era of the Artificial-Intelligence-Electric-Vehicle (AIEV) will soon follow. He highlighted that, when this happens, it is estimated that all the EVs in Japan would be equivalent to a 250GW/h battery storage system, which would reduce the individual cost to 1/7 of the current burden and thereby allow us to overcome the paradox of environment and economy.

## **2. Thematic Sessions**

During the Thematic Sessions, there were focused discussions on the following five themes. The main points are summarised below (see Appendix 2 for more information).

- ① Implementing the SDGs and the Paris Agreement and Moving towards the Post-2020 Global Biodiversity Framework
  - The redesign of the socioeconomic system necessary to recover from the COVID-19 pandemic
  - Actions needed to achieve carbon neutrality by 2050
  - Elements to be included in the Post-2020 Global Biodiversity Framework and targets, and the roles for governments and businesses to play to align the coexistence with nature and climate change countermeasures
  - The need to expand synergies for the achievement of the SDGs, the Paris Agreement and global biodiversity targets
  - Roles played by stakeholders for social change
- ② Innovations for Renewable Energy Diffusion
  - Outlook on the diffusion of renewable energies in Japan and abroad

- Technologies to diffuse variable renewable energies (VRE) in Japan and abroad
  - Effective policies and measures for the transformation of the energy demand side in Japan and abroad (initiatives taken by stakeholders such as local governments and businesses)
  - Importance of innovation for expanding renewable energy
  - Policies and measures for expanding renewable energy in line with a long-term target toward carbon neutrality
- ③ Climate Change Adaptation and Water
- Scientific knowledge and predictions on climate risks
  - Promotion of effective, climate-conscious disaster risk management
  - Climate-conscious international cooperation to address climate-related disasters
- ④ Promotion of Circular Economy and Countermeasures for Marine Plastic Litter
- Policy development based on the circular economy concept in Japan and overseas
  - Considering solutions for marine plastics
  - Importance of international collaboration
- ⑤ Strategic Initiatives for Achieving SDGs: Local Governments, Business and the Financial Sector
- Progress of initiatives towards achieving the SDGs with respect to local governments, businesses, and the financial sector
  - Approaches to “Localising the SDGs” and the role of stakeholders
  - Directions for future stakeholder actions

### **3. Wrap-Up Session and Acknowledgements**

Under the facilitation of the Chair of GEA International Conference 2020, each session chair reported on the key points of their respective thematic session, and all GEA Members and session speakers further deepened their discussion. The results of these discussions were integrated into Appendix 2, "Thematic Sessions."

In his closing remarks, the Chair expressed his gratitude to the GEA Members and the GEA Secretariat for their utmost efforts in organising this meeting despite the difficult conditions of the COVID-19 pandemic that led to the postponement of this conference from March to December, to the speakers and participants around the world who participated either in-person at the venue or online, and to all staff who enabled the smooth operation of this conference.

## Summary of Keynote Speech

Ms. Inger ANDERSEN, Under-Secretary-General of the United Nations (UN) and the Executive Director at the UN Environment Programme (UNEP) thanked Japan for announcing a two-trillion yen economic policy to combat climate change as part of its COVID-19 recovery effort, emphasising that this will pave the way for achieving net-zero emissions in Japan and that this is the leadership that the world needs. She stated that the global COVID-19 pandemic is illustrative that the three global crises (the climate crisis, crisis for biodiversity and nature, and the crisis of pollution and waste) have not been addressed, and that the critical challenge of this century is “to be at peace with nature”. To be at peace with nature, the following four points are necessary.

- While we must reduce greenhouse gas (GHG) emissions to address the climate crisis, the world is falling desperately short on reducing GHG emissions. She introduced a key finding from UNEP’s Emissions Gap Report 2020 released in December that global emissions far exceed amounts in alignment with the Paris Agreement targets. She stated that it is reassuring that 126 countries, including Japan, have committed to zero emissions, which together produce 51% of global emissions, and that if the United States follows suit, then the commitment would be equivalent to 63%. However, she added that each country must add short-term policies and actions into their Nationally Determined Contributions (NDCs) prior to the 26<sup>th</sup> session of the Conference of the Parties (COP26) to the United Nations Framework Convention on Climate Change (UNFCCC).
- It is necessary to address the crisis of biodiversity and nature. She explained that nature supports 14 of the 17 Sustainable Development Goals (SDGs) and that over half of the global GDP is dependent on nature. She also mentioned that the rising level of awareness among national governments and businesses as demonstrated at this year’s UN Biodiversity Summit as well as Japan’s expansion of the SATOYAMA Initiative are critical steps toward achieving the biodiversity targets.
- Regarding the issue of exacerbations of pollution and waste, she shared that, by 2025, 2.2 billion tonnes of waste will be released annually by the world’s cities and that pollution is a major cause of biodiversity loss in the Asia-Pacific region. Acknowledging that Japan, having experienced the issue of Minamata disease, has been taking leadership in global mercury reduction and national capacity-building efforts, she expressed her hopes for even stronger partnerships. Moreover, the International Council of Chemical Associations will agree on a post-2020 framework for chemicals and waste in 2021, and she stated that this is an opportunity for Japan to be a leader in formulating the new framework for chemicals and sound waste management.
- She stressed the need for “green recovery” to recover better from the COVID-19 pandemic and the need to prioritise integrated actions. She pointed out that green recovery can provide us with an opportunity to reset our economies, transform patterns of consumption and production, and invest in green jobs, renewable energy, sustainable food systems, and green infrastructure.

Additionally, she expressed that Japan can lead efforts to tackle the three crises through actions in the following areas:

- ① Green technology: By promoting and disseminating research and development in renewable

energy and other core technologies, she stated that Japan can accelerate progress on achieving policy targets to conserve nature.

- ② Circular economy: Japan has been taking action on circular economy since 1991, and has the technology, creativity and knowledge to transform the economy while reducing resource consumption.
- ③ Sustainable infrastructure: Sustainable infrastructure solutions must be prioritised to address all three crises, and that Japan is already taking a leading role within the G20.

Moreover, she stated that 2021 must be the year when we “flip the green switch” and pave the way for global sustainability. She expressed her confidence that Japan can play a leading role to create this path toward a better future for the world.

## Summary of and Comments from the Thematic Sessions

### Session 1: Implementing the SDGs and the Paris Agreement and Moving towards the Post-2020 Global Biodiversity Framework

#### Session Chair:

**TAKAMURA Yukari**

Professor, Institute for Future Initiatives, the University of Tokyo

#### Keynote Speech:

**KOIZUMI Shinjiro**

Minister of the Environment / Member, House of Representatives, Japan

#### Speakers:

**TAKEUCHI Kazuhiko**

President, Institute for Global Environmental Strategies (IGES) / Chair, Central Environment Council, Government of Japan

**Yannick GLEMAREC**

Executive Director, Green Climate Fund (GCF)

**FUTAMIYA Masaya**

Chair, Committee on Responsible Business Conduct & SDGs Promotion, Japan Business Federation (Keidanren) / Director-Chairman, Sompo Japan Insurance Inc.

### The redesign of the socioeconomic system necessary to recover from the COVID-19 pandemic

- The COVID-19 pandemic, which is now causing a global crisis, shares a common background with the climate and biodiversity crises, including rapid deforestation, urbanisation, and the mass and long-distance movement of people due to globalisation. Now more than ever, there is a need for social change in all countries across the globe to achieve a resilient and sustainable world, and Japan needs to play a leading role in the international community.
- COVID-19 has had various effects on carbon dioxide (CO<sub>2</sub>) emissions, air pollution, economies, investments, and international environmental policy, etc. The pandemic has exposed the vulnerability of Japanese society and challenges for resilience<sup>1</sup>, necessitating social change, changes in lifestyles, and changes in how to pursue a decarbonised and sustainable society. It is important to envision the future society we want and think about the challenges and paths to achieve it. As a sign of economic and social redesign, stakeholders such as local governments, companies and financial organisations are taking action.
- The COVID-19 pandemic and its far-reaching effects require a rapid and urgent response and recovery. In this context, the question is how to effectively pursue the redesign of the socioeconomic system toward realising a sustainable and resilient world (as illustrated by the Triple R Framework of the Institute for Global Environmental Strategies (IGES)).

<sup>1</sup> Resilience: the ability of societies or organisations to flexibly adapt to various risks and external forces, minimise damage, and swiftly recover to normalcy.



- The redesign of the socioeconomic system should aim to enhance environmental, economic and social aspects within planetary boundaries. Specific directions for redesign include the “three transitions” (transition to a decarbonised society, transition to a circular economy, and transition to a decentralised society), and the localisation of the SDGs through adopting the circulating and ecological sphere concept, as envisaged in Japan’s Fifth Basic Environment Plan. This concept aims to promote decarbonisation, resource recycling, and coexistence with nature in an integrated manner at regional, national, and global levels, taking into account the relationship between urban and rural areas.
- Keidanren aims to establish a sustainable form of capitalism with Society 5.0, a society that identifies social issues through digital transformation (DX), and creates value and solves problems using the imagination and creativity of a diverse range of people.
- We must backcast from future visions to clarify actions to be taken and accelerate the implementation of these actions.

### **Actions needed to achieve carbon neutrality by 2050**

- Taking ambitious action toward carbon neutrality by 2050 will bring about growth through the transformation of the entire economy and society, and contribute to solutions of various problems in the region.
- In order to link climate change countermeasures to the recovery from COVID-19 and green growth, it is necessary to promote energy efficiency, low-carbon energy, and decarbonisation of energy at the same time.
- Improving energy efficiency (energy-saving) and developing low-carbon and decarbonised energy are key to achieving carbon neutrality in 2050. While it is essential to develop and disseminate innovative technologies from a long-term view, it is important to steadily improve and disseminate existing and readily available low-carbon and decarbonised technologies (renewable energy, electric vehicles, ZEH (net zero energy house), ZEB (net zero energy building), etc.). This will pave the way to foster green industries and green growth, and achieve early reduction. Along with technological innovation, social innovation to enable the dissemination of existing technologies is even more important, through which systems (regulations, incentives/disincentives, markets) are reorganised and continuously improved in a manner consistent with the achievement of goals. It is also important that current investment decisions are consistent with the 2050 carbon neutrality goal.
- The introduction of carbon pricing is one of the most important means for achieving carbon neutrality in 2050. It is important to create a scheme that includes a specific design, and that is effective and convincing for various stakeholders involved in decarbonisation, including people affected by the transition to decarbonisation. The national government must take leadership in important efforts to achieve carbon neutrality and nationalise key projects. Industry, government, academia, and ministries must also take concerted action. In order to promote innovation, it is necessary to enhance basic research, not only in the fields of science and engineering, but also in a wide range of subjects including biology. It is essential to not only provide fixed technical support, but also pick up the seeds of a wide range of innovations that may contribute to carbon neutrality and put them to practical use.
- Established by the UNFCCC in 2010, the Green Climate Fund (GCF) makes investments in eight

strategic areas relevant to both adaptation and mitigation, in line with countries' priorities. As of November 2020, 159 projects across 117 countries have been approved, among which 50 projects are for ecosystems and ecosystem services, with total funding of USD 419 million. The GCF's Strategic Plan 2020-23 aims to transition towards low-emission, climate-resilient development pathways, in line with the goals of the Paris Agreement.

- COVID-19 in developing countries has been causing declines in domestic public revenue, downgrades in sovereign credit rating<sup>2</sup>, declines in private external finance, and solvency and liquidity crises for SMEs. There is an urgent need to provide strong green stimulus for COVID-19 recovery.

For fostering social transformation and green industry toward carbon neutrality, Japan can support the green recovery of developing countries by providing funding and technology.

### **Elements to be included in the Post-2020 Global Biodiversity Framework and targets, and the roles for governments and businesses to play to align the coexistence with nature and climate change countermeasures**

- The Post-2020 Global Biodiversity Framework should include: (1) Spatial conservation measures for biodiversity outside protected areas; (2) Strengthening of synergies through the integration of diverse efforts; (3) Biodiversity conservation and sustainable use of resources through landscape and seascape approaches<sup>3</sup>, as promoted by the Satoyama Initiative; (4) Balance of socioeconomic needs or goals and biodiversity conservation; (5) Mainstreaming of biodiversity into other UN processes, such as poverty reduction and climate adaptation.
- Businesses can deliver technologies, products and services that contribute to the new framework, such as those that promote digital transformation (DX). By strategically disseminating information internally and externally in cooperation with the Ministry of the Environment and the business community, the general public's understanding can be improved. Moreover, the business community's efforts can be further promoted.

### **The need to expand synergies for the achievement of the SDGs, the Paris Agreement, and global biodiversity targets**

- It is necessary to aim to simultaneously achieve the SDGs, climate goals and biodiversity targets through synergies, as well as consider food security as an issue that intersects these challenges. It is vital to implement integrated efforts on decarbonisation, resource circulation and nature conservation at multiple levels across local, national and global scales. Local governments' actions require financial support from the national government.
- Policy integration has the potential to cut investment requirements by nearly half in key sectors to meet the SDGs and Paris Agreement, as compared to fragmented policies that do not consider synergies.
- The Green Climate Fund (GCF) Readiness Initiative has been useful in incorporating synergies and promoting policy integration in the formulation of NDCs in developing countries.

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<sup>2</sup> Sovereign credit rating: An assessment of a country or sovereign entity's creditworthiness (the ability and willingness to pay principal and interest on bonds and debt).

<sup>3</sup> Landscape and seascape approaches: Approaches that integrate social, economic, and environmental dimensions to address complex challenges in clearly determined terrestrial and/or marine spaces.

- Japan provides funding to the GCF, and the MUFG Bank also provides similar support to developing countries.

### **Roles played by stakeholders for social change**

- DX can play a role in helping companies visualise social issues and co-create value with diverse stakeholders.
- To achieve decarbonisation, initiatives by not only large companies but also small and medium-sized enterprises are necessary.

## Session 2: Innovations for Renewable Energy Diffusion

### Session Chair:

**Michael NORTON**

Environment Programme Director, European Academies Science Advisory Council (EASAC)

### Speakers:

**Helene von REIS**

President / CEO & CSO, IKEA Japan K.K.

**MIYAKE Kahori**

Executive Officer, CSR & Communication, AEON Co., Ltd. / Co-Chair, the Japan Climate Leaders' Partnership (JCLP)

**OGIMOTO Kazuhiko**

Project Professor, Institute of Industrial Science, the University of Tokyo

### Outlook on the diffusion of renewable energies in Japan and abroad

- From 2010 to 2019, solar and wind power, which have large deployment potential, achieved remarkable expansion in Japan, Asia, the United States, and Europe. Today, there are technological solutions that are deployable at a large scale and are increasingly cost-competitive.
- Geothermal power is estimated to be able to provide gigawatts (GW) of baseload and dispatchable renewable energy anywhere in the world for less than USD 50/MWh by 2030, and Japan should take further action to make use of its geothermal resources. For biomass, it is necessary to develop projects that can demonstrate climate benefits across the whole lifecycle, and at time scales relevant to meeting the Paris targets.
- The deployment of renewable energy amounting to 7.7 terawatts (or 3.3 times current global capacity) has been shown to be feasible and could be achieved cost-effectively today.

### Technologies to diffuse variable renewable energies (VRE) in Japan and abroad

- To expand variable renewable energy (VRE)<sup>4</sup>, it is necessary to improve flexibility while also utilising demand-side equipment. To further diffuse VRE, technologies that allow for greater flexibility in energy usage, such as electric vehicles (EVs) and heat pumps, play a vital role.
- Battery technology is becoming increasingly affordable because of the diffusion of EVs. Distribution grid operators are introducing mid-scale batteries to upgrade the grid system while avoiding increases in total cost. Power-to-X applications (technologies to use electricity for heat or hydrogen production), which support sector coupling<sup>5</sup>, are emerging.
- Hydrogen produced from renewable electricity through electrolysis can be used as a medium of energy storage for seasonal adjustment and thereby reduce the curtailment of VRE. Indicative sectors that can utilise hydrogen include transport (for large vehicles, shipping, aviation, etc.) and industry (for use of high temperature heat, feedstock, etc.).

### Effective policies and measures for the transformation of the energy demand side in Japan

<sup>4</sup> Variable renewable energy (VRE): Energy sources whose electricity generation varies depending on weather conditions, e.g. wind power and solar photovoltaics (PV).

<sup>5</sup> Sector coupling: A holistic approach to decarbonisation that involves coupling and connecting renewable energy-based electricity with other energy and energy-intensive sectors, such as heating and cooling, transport, and industry and manufacturing.

### **and abroad (initiatives taken by stakeholders such as local governments and businesses)**

- The state of policies impacts corporate competitiveness and location competitiveness. Governments and global companies are shifting to 2030 targets in line with the 1.5 °C target, and the risk that areas with high renewable energy procurement costs may be removed from supply chains is increasingly within the realm of possibility. It is important to consider how to support small- and medium-sized companies, which tend to have fewer economic resources and are in disadvantaged positions along the supply chain, so that they are able to purchase low-cost RE.
- Meanwhile, leading companies are paying a cost penalty for leading in their use of RE because the externalities of fossil fuels are not properly accounted for in energy pricing. This is a barrier preventing their leadership from becoming the norm for other businesses, illustrating the basis for setting an effective carbon price that reflects full costs of global warming.
- There is demand for buildings powered by RE, but the costs are high. Large companies such as IKEA can, as building tenants, encourage more RE-powered buildings and cost reduction, and thereby create incentives for more companies to decarbonise.
- To prevent Japanese companies from falling behind the global trend toward decarbonisation, it is critically important to set not only long-term, but also short-term ambitious emission reduction targets.
- Corporate networks such as RE100 and the Japan Climate Leaders' Partnership (JCLP) also play very important roles.

### **Importance of innovation for expanding renewable energy**

- Systemic innovation is crucial. Countries need to devote more attention to enabling smarter energy systems through digitalisation, sector coupling via scaling up electrification, and decentralisation.
- Centralised generators must support distributed sources (as in the prosumer<sup>6</sup> model).
- Apart from technological innovation, it is also necessary to create a framework to promote low-carbon/decarbonisation technologies, businesses, and behaviours. To do so, transformative change of economic and social systems is needed.

### **Policies and measures for expanding renewable energy in line with a long-term target toward carbon neutrality**

- In order to expand decarbonisation technologies within a timeframe relevant to the Paris targets, it is important for the public to have a well-balanced understanding about the risks of the climate crisis and the risks or negative impacts of such technologies as nuclear power, geothermal power, and large-scale solar PV and wind farms. Public engagement in discussions regarding the climate crisis and the need to expand decarbonised energy sources is thus an important part of government strategy.
- To maximise the contribution of renewable electricity for 3E+S<sup>7</sup>, it is critical to ensure a stable supply and demand and affordability through upgrading the operation of electricity market

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<sup>6</sup> Prosumer-based decentralised generation: Electricity generation for use on-site (as opposed to receiving energy through the grid when electricity is generated at a large, centralised facility) by energy "prosumers" (those who both produce and consume electricity).

<sup>7</sup> The principle of 3E+S in Japan's Energy Basic Plan, under the premise of ensuring "Safety", emphasises best efforts to meet the objective of "Energy Security" (stable supply) while also concurrently pursuing "Economic Efficiency" (lowering energy costs by enhancing energy efficiency) and conservation of the "Environment".

systems. In particular, there is a need for greater connectivity to allow excess supply in one area to be used elsewhere (as demonstrated by the Kyushu example).

- In Japan, referring to international norms shown at the International Energy Agency (IEA)'s World Energy Outlook 2020 (WEO2020), it is necessary to set a target of a 50% renewable electricity share in 2030 in order to maintain corporate competitiveness. Ambitious targets offer prospects for market expansion and stimulate private investment, thereby reducing costs through capitalising on the economies of scale.
- It is essential to achieve on-site and off-site Power Purchase Agreements (PPAs)<sup>8</sup> to stimulate the renewable energy market. Expanding the use of renewable energy without using feed-in tariff/premium schemes (FIT(P))<sup>9</sup> could alleviate the burden on the public.
- At the individual level, we must establish education that encourages youth to think critically and actively contribute to discussions about decarbonisation and actions such as choosing RE.
- Improvements in decision-making processes and mind-set about the energy mix are vital. It is necessary to create decision-making processes that integrate climate change, so that the energy mix and the NDC are in alignment with the 1.5 °C target.
- Based on the above discussion, it is important to design a proper decision-making process. In particular, in Japan, it is necessary to initiate discussions regarding priority-setting among various options, based on multiple quantitative scenarios.

Note: In Session 2, there were critical discussions that went beyond the scope of RE. It was discussed that it would be important to continue to develop Carbon dioxide Capture, Utilisation and Storage (CCUS) technologies since emissions from Japan's industrial sector exceed 500 million tonnes of CO<sub>2</sub> per year. The question of how "growth" is conceptualised was also raised. The current conceptualisation of growth based on GDP is an underlying cause of the current crises because it is based on increasing consumption. The importance of offering alternatives to measure "well-being" rather than just consumption was pointed out.

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<sup>8</sup> On-site Power Purchase Agreement: An agreement in which the electricity consumer provides the electricity producer with space for renewable energy generation plant(s), and directly purchases the electricity generated on-site.

Off-site Power Purchase Agreement: An agreement through which the electricity consumer purchases a physical quantity of electricity that is generated by off-site renewable energy plants and delivered through the public grid.

<sup>9</sup> Feed-in tariff (FIT) schemes provide a long-term fixed, above-market price for those producing renewable energy. Feed-in premium (FIP) schemes involve paying those producing renewable energy an additional amount on top of the wholesale price.

## Session 3: Climate Change Adaptation and Water

### **Session Chair:**

#### **OKI Taikan**

Senior Vice-Rector, UNU / Assistant Secretary-General, UN

### **Speakers:**

#### **NAKAKITA Eiichi**

Professor, Disaster Prevention Research Institute, Kyoto University

#### **Thomas PANELLA**

Chief, Water Sector Group, Asian Development Bank (ADB)

#### **TAKEMURA Kotaro**

Secretary General and Chairman of the Board of Directors, Japan Water Forum

#### **HIRABAYASHI Yukiko**

Professor, Department of Civil Engineering, Shibaura Institute of Technology

### **Scientific knowledge and predictions on climate risks**

- In recent years, climate-related disasters have become more severe and widespread. In addition to meteorological hazards caused by extreme weather, there are concerns about other adverse impacts of climate change such as sea level rise and droughts. Immediate implementation of adaptation measures is warranted.
- Given our globalised socioeconomic system, in addition to domestic climate-related disasters, it should also be widely recognised that loss and damage in foreign countries indirectly influence our society and economy through the supply chain.
- While scientific research is underway for the better assessment of climate change and its impacts, which could be used for the formulation of adaptation measures, we must pay attention to the changes in and speed of climate risks.
- There are uncertainties in predictions of climate change and its impacts. However, for “no-regret adaptation”, we should apply the precautionary principle, and the lack of scientific evidence or information should not be reasons for inaction. Action without delay is imperative.

### **Promotion of effective, climate-conscious disaster risk management**

- In responding to various water risks, we first need to holistically understand the mechanism of global hydrological cycles, and scientifically assess the future climate change impacts in each region. We should then make and implement medium- to long-term adaptation plans that include both hard and soft measures.
- While bottom-up approaches based on local realities are essential, at the national level, it is also necessary to enhance cooperation among relevant government agencies and promote collaboration with both the academic and DRR communities.
- In response to climate-related disasters that exceed current estimates, we should promote all kinds of efforts, including national land and infrastructure development, land-use planning (zoning), evacuation, relocation, and social change, while promoting further public awareness-raising, bearing in mind that climate change could threaten human lives. In so doing, we must give due consideration to “indigenous knowledge,” “green infrastructure,” “Ecosystem-based

Disaster Risk Reduction (Eco-DRR) and “Adaptive Recovery”.

- Adaptation should also include efforts to minimise damage during and after disasters, and we should promote measures that comprehensively cover various short- to long-term efforts, including crisis management mechanisms that respond promptly to emergencies.
- As climate change is closely related to various social, economic and environmental issues, more comprehensive and integrated approaches should be explored to address these issues simultaneously.

### **Climate-conscious international cooperation to address climate-related disasters**

- Given that current investments in adaptation are estimated to lead to significant benefits in the future, it is necessary to accelerate investments and promote adaptation measures, including improvements in governance.
- The impacts of floods and droughts are likely to become more serious in developing countries, particularly in vulnerable communities. Developed countries that rely on developing countries through supply chains will also be directly and indirectly impacted. Because of this, the sharing of scientific knowledge and practices on adaptation measures at the global scale is indispensable for effective adaptation. Moreover, designing a sustainable society will also make adaptation to climate change easier to achieve and more effective.
- As there are physical, social, economic, and cultural limits to adaptation, all countries must work toward mitigation measures to reduce greenhouse gas emissions.
- Mitigation and adaptation make up the two core elements in climate change countermeasures. Mitigation measures are gaining momentum to move forward toward achieving net-zero societies, and adaptation measures must also be further accelerated through regional and global partnerships.



## **Session 4: Promotion of Circular Economy and Countermeasures for Marine Plastic Litter**

### **Session Chair:**

#### **MORIGUCHI Yuichi**

Vice President, National Institute for Environmental Studies (NIES), Japan / Professor, Department of Urban Engineering, Graduate School of Engineering, the University of Tokyo

### **Speakers:**

#### **Keith ALVERSON**

Director, UNEP International Environmental Technology Centre (IETC)

#### **KATSURAGAWA Takahiro**

Mayor of Kameoka City, Kyoto Prefecture

#### **Paul PERRINIAUX**

President, Nihon Michelin Tire Co., Ltd.

#### **ISOBE Atsuhiko**

Professor, Research Institute for Applied Mechanics, Kyushu University

### **Policy development based on the circular economy concept in Japan and overseas**

- One major driver leading to the development of waste management in Japan was the need for public sanitation in response to shortages in landfill sites. This led to legislations focusing on the environmentally sound management of waste in Japan. Moreover, with the perspective of effectively using resources, sound circulation of materials and the 3Rs were further developed through the enactments of the Basic Law for Establishing the Recycling-based Society and the Fundamental Plan for Establishing a Sound Material-Cycle Society in the early 2000s. Japan has been actively demonstrating its leadership in international initiatives on circular economy and resource efficiency in the G20 and G7.
- It is necessary to further consolidate, accumulate, and share scientific knowledge on the environmental impact across the entire life cycle of material use. It is important to shift from a traditional linear economy to a circular economy, which is based on recycling and sustainable consumption and production. It is also vital to “decouple” economic development and environmental impacts.
- To prevent leakages of recyclables and wastes and ensure environmentally sound international resource circulation, it is essential to design effective domestic waste management and recycling systems, and strengthen international collaboration.
- The transitions to a circular economy and decarbonised society enhance each other in terms of required changes in social systems and lifestyles as well as concrete actions (for example, actions against food loss) at the business and local government levels. Decarbonisation and zero plastics should be based on concrete action plans developed through consensus-building processes among stakeholders.
- Actions taken by local governments are key for realising a circular economy. Some local governments have already taken measures such as monitoring the status of river drifted debris, ambitious voluntary commitments, policy measures to reduce plastic waste, and actions against food loss. From now on, it is essential to scale up pioneering actions from single “good practices”

to large-scale implementation. Towards this end, environmental education can be a good trigger to foster awareness among citizens and consumers that they have power to change visions and business models of local governments and businesses into those that are more sustainable and circular. In addition, changes in national policies and support should be those that sustain such local stakeholder collaboration and lead to the expansion of activities beyond a single locality.

- Actions by the private sector are also very important to build a circular business model. It is important to build a circular loop system through the 3Rs + Renew (Reduce, Reuse, Recycle, Renew) in order to minimise negative impacts on the environment and society by thoroughly reducing the amount of resources used, changes in materials used from product design to end-of-life. Moreover, it is necessary to develop an evaluation scheme to incentivise and enhance such circular business models.
- Companies should make these efforts relevant to their mission (purposes) and turn these efforts into circular businesses, keeping in mind the strengthening of their business activities and brand, as well as characteristics of the local region.

### **Considering solutions for marine plastics**

- Scientific knowledge is essential for enhancing actions against plastic pollution. For the plastics issue, it is necessary to understand the issue from both the economic and social systems and the natural environmental system, in accordance with the DPSIR (Driving Force, Pressure, State, Impact, Response) framework.
- The issue should be considered across the entire life cycle of plastics, including their uses, production, trade and consumption. It is important to identify post-use disposal methods, collection methods, treatment methods, and pathways to the ocean. This will enable constructive dialogue between producers and consumers to reconcile the balance between the benefits of plastic use such as functionality, convenience, and safety, and the need for investment in promotion of environmentally-friendly product design, environmentally sound management of used plastics, and pollution prevention. In addition, COVID-19 poses new challenges such as increases in plastic waste considered to be medical waste. Without concrete actions in the future, a significant increase in marine microplastics is expected. Particularly, as plastics are broken into smaller pieces and persist in the environment, a better understanding on the impacts of microplastics on human health and marine and other ecosystems is needed.
- To monitoring plastic leakage into the environment as well as the behaviour of microplastics in the environment, it is necessary to share standardised observation protocols and establish an international framework for continuous monitoring. It is also important to accurately predict marine plastic pollution through international data centres to integrate and publish observational data and collaborate with stakeholders at the international level (researchers, policymakers, the business community, and non-profit organisations).
- In order to prevent the generation of marine plastic litter, we need to ensure proper waste management on land, strengthen river environmental management as a possible pathway of plastic leaking into the ocean, and create a socioeconomic system that does not generate waste. In order to achieve this, it is necessary to strengthen and promote the efforts by local entities including local consumers and retailers, with appropriate support. In particular, it is firstly required for local governments to set an ambitious vision and work with local businesses and

citizens. By building on local branding and taking advantage of the benefit of early adoption, local governments can lead these efforts for local sustainable development and vitality of communities.

- It is essential to have the support of citizens to prompt action from businesses and local governments. Environmental education for citizens can provide necessary scientific information for such support. Sharing good practices at the local level can allow such actions to be scaled up.
- Business development that takes resource circularity into consideration is also significantly important for tackling the marine plastic litter issue. In this sense, necessary incentives should be considered to encourage such business initiatives.

### **Importance of international collaboration**

- It is important to strengthen policy options through international cooperation, including the application of scientific assessment in policies, development of indicators and targets, and expansion of sustainable products and services. Further international technical support for actions against plastic pollution is necessary for rapidly developing economies that are considered to be major sources of marine plastic litter. It is important to promote actions to build and improve waste management systems and data collection systems, as there are gaps in waste management systems and the scientific data collection capacity necessary to build such systems in many developing countries.

## **Session 5: Strategic Initiatives for Achieving SDGs: Local Governments, Business and the Financial Sector**

### **Session Chair:**

#### **TAMAKI Rintaro**

President, Japan Center for International Finance (JCIF) / Former Deputy Secretary General, Organisation for Economic Co-operation and Development (OECD)

### **Speakers:**

#### **TAKEMOTO Kazuhiko**

Visiting Professor, UNU-IAS/ Project Professor, the University of Tokyo

#### **KANAI Tsukasa**

Executive Manager/ Chief Sustainable Officer, Corporate Planning Department, Sumitomo Mitsui Trust Bank, Limited

#### **BERNADIA Tjandradewi**

Secretary-General, United Cities and Local Governments Asia-Pacific (UCLG-ASPAC)

#### **Jörg RAUPACH-SUMIYA**

Professor, International Management, College of Business Administration, Ritsumeikan University

### **Progress of initiatives towards achieving the SDGs with respect to local governments, businesses, and the financial sector**

- In the political declaration at the UN SDG Summit in September 2019, one of the commitments for the implementation of the 2030 Agenda was “bolstering local actions to accelerate implementation”. In addition, “Localising the SDGs” was taken up as part of the Prime Ministerial Dialogue, which shared the importance of local government initiatives and roles, and their commitment to the implementation of the 2030 Agenda.
- A growing number of local governments have been working on the SDGs in spite of a difficult environment with many challenges. In Japan, emphasis has been placed on regional revitalisation with the SDGs as the driving force. On this front, various initiatives are being promoted, including the “SDG Future Cities” programme in which the national government recognises local governments that are taking advanced approaches, the creation of “Circulating and Ecological Spheres”, and the “SDGs Finance for Local Revitalization” initiative. Internationally, the Union of Cities and Local Governments (UCLG) has created a guide and presented a roadmap for the implementation and achievement of the SDGs in order to promote local government initiatives.
- Businesses are also accelerating their efforts toward the SDGs. Recognising that the realisation of a sustainable society is the foundation of corporate development, they are promoting management that considers ESG (Environmental, Social and Corporate Governance) as a form of social responsibility. The financial sector has been pursuing its own ESG management and has also been involved in constructive engagement to promote ESG management amongst companies that participate in investing and financing.
- ESG finance is growing in both quality and quantity worldwide. In recent years, it is particularly noteworthy that ESG investments and loans are starting to be used in the pursuit of ‘impacts’ as a signal of concrete developments toward the SDGs and the Paris Agreement. For example, the Principles for Responsible Banking, launched in September 2019, require that financial

institutions continuously increase positive impacts while reducing the negative impacts by clients of their activities, products and services, and set and disclose targets.

### **Approaches to “Localising the SDGs” and the role of stakeholders**

- The global COVID-19 pandemic has had significant impacts on economic and social activities around the world, particularly affecting the poorest and most vulnerable people, regions and countries. Since the response to the pandemic and efforts to achieve the SDGs share similarities in terms of risk management and the need for integrated approaches to economic, social, and environmental aspects together with digitalisation, the SDGs can be a guiding principle for economic recovery in the COVID-19 era and beyond.
- An integrated approach may provide co-benefits in multiple sectors and issues and allow investment funds to be used effectively in the region. For example, the implementation of renewable energy systems that utilise local resources can provide a solution that addresses multiple priorities. A framework of cross-sectoral initiatives will promote the circulation of local resources and funds within the region, which contributes to increasing the added value of the regional economy. One example would be an energy management system that involves powering production, services, transportation, and information technology with an energy supply based on solar, wind, forests and other biomass. Such initiatives could also facilitate collaboration among stakeholders such as local governments, local businesses, producers, commerce, and financial institutions.
- In Germany, for example, about half of the owners of renewable energy supply facilities are citizens, farmers, and local businesses. Investments and loans from local banks are also used.
- Local governments have an important role to play in the practice of "Localising the SDGs," such as developing and implementing policies that promote such integrated approaches, creating space for collaboration between local stakeholders, and raising awareness.
- Securing funding is key to advancing the “Localising the SDGs” initiative. Important players in this regard include regional companies, listed companies, regional financial institutions, global financial institutions, and local governments. Regional companies can promote business activities that contribute to the SDGs at the local level. Listed companies can share business opportunities and knowledge with regional companies through their supply chains. Regional financial institutions can provide capital and knowledge to regional businesses in collaboration with local governments and global financial institutions. Global financial institutions can provide knowledge to regional financial institutions and local governments. Local governments can support local companies in cooperation with regional financial institutions.
- One vital aspect of facilitating these collaborations is promoting the visibility of ESG information (non-financial information) about local companies. This can provide useful information for financial institutions to make a decision about the potential of a specific ESG investment to leverage a positive impact on the local community and economy.

### **Directions for future stakeholder actions**

- In order to recover from the COVID-19 pandemic, it is necessary to apply the SDGs framework, make use of the unique characteristics of each region and redesign a new economy, a new society and new lifestyles. In this regard, actions in coordination with national government policies are

necessary.

- The role of local governments is critical in promotion of the SDGs, but they face many limitations in terms of finance and human resources. Support is needed to address these challenges.
- In this regard, local governments, businesses, the financial sector, and other stakeholders who are working to achieve a sustainable society at the local level have crucial roles to play. It is important for each of these actors to not only promote the implementation of the SDGs by placing them at the centre of their management practices, but also, while taking social common capital into consideration, build a partnership between diverse stakeholders by sharing a vision of a sustainable and resilient future for the region and working together to achieve it.
- In accelerating the efforts of stakeholders, it is also important to increase the number of successful cases of “Localising the SDGs” and to share this knowledge with other regions, nationally and internationally. The role of central government in this regard is crucial.
- Japan's SDG Future Cities Programme and the Local Government SDGs Model Project are useful examples in this regard. The SDG Future Cities Programme invites local governments to submit proposed local initiatives that contribute to the achievement of the SDGs. After selecting model cities, the central government cooperates with and supports them in implementing their initiatives, formally recognises the initiatives as “advanced SDGs initiatives” and then widely disseminates information on such successful cases. In addition, a public-private partnership platform for SDGs has been established by the central government to provide a mechanism to promote SDG localisation, including activities jointly carried out by the public and private sectors, such as information exchange, business-matching, project formation, and seminars/workshops. Such a multiple framework provides the impetus for regional activities and could be a place to encourage collaboration among different stakeholders crossing countries and regions.
- The role of stakeholders is also being emphasised in the UN and other international organisations, and programmes such as guidance and capacity building are being offered. Ensuring the implementation and expansion of such efforts will become even more desirable going forward.
- Policies that encourage long-term investments aligned with the SDGs and direct finance flows for economic activities with positive impacts are necessary. In this regard, carbon pricing is an important mechanism to send signals to the market in that direction. Information disclosure on sustainable finance as well as the development of the EU Taxonomy<sup>10</sup> and its impacts need to be considered carefully.

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<sup>10</sup> EU Taxonomy: One of the EU's Sustainable Finance Policy Action Plans, and a classification framework for economic activities that contribute to six environmental objectives (climate change mitigation; climate change adaptation; sustainable use and protection of water and marine resources; transition to a circular economy; pollution prevention control; and protection and restoration of biodiversity and ecosystems). The EU Taxonomy regulates financial market participants who sell environmentally sustainable financial products and applies to information disclosure from certain financial market participants in EU countries. Classifications for climate mitigation and adaptation have been formulated so far, and classifications for the other four environmental objectives will be developed in due course. The delegated acts regarding the first two environmental objectives will be sequentially applied from 2022.