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## P4G Green Future Week: 24-29 May 2021

Green Future Week, organized by P4G (Partnering for Green Growth and the Global Goals 2030) and hosted by the Republic of Korea (ROK), featured partnerships and solutions for climate action and sustainable development, with a view to promoting implementation of targets under the Paris Agreement on climate change and the 2030 Agenda for Sustainable Development.

The week of events took place in the wake of the Leaders Summit on Climate, hosted by US President Joe Biden in April, when 40 countries representing some of the world’s highest greenhouse gas (GHG) emitters announced ambitious climate commitments and ROK pledged to terminate public overseas coal finance.

P4G focuses on public-private partnerships, while making room for the voices of civil society, children and youth. Accordingly, Green Future Week talks included heads of development banks, CEOs of global companies, local government authorities, researchers and technical experts, NGO campaigners, and school-age children. In the words of one business leader, “Partnership is the new leadership,” and Green Future Week showcased a wide variety of partnerships.

Much discussion at Green Future Week focused on how countries can reach climate neutrality by 2050 through ramping up their use of renewable energy and related technologies for greater energy efficiency and resource use. Presentations on this topic highlighted the great potential of alternative fuels such as green hydrogen, as well as the use of more efficient fuel cell technology and deployment in new sectors such as maritime shipping. Speakers shared their experiences of prototyping, trialing, and marketing of new products and services, noting that strong partnerships and collaboration with governments, scientists, and users are essential.

Another prominent theme of Green Future Week was how the world can best avoid another global pandemic such as COVID-19. Speakers highlighted the need for everyone to employ nature-based solutions for a green recovery, with many warning that lifestyle choices such as eating less meat, avoiding waste of food and resources, and cleaning up the environment of plastic litter will be essential in addition to working for large-scale solutions. Sessions on forests and oceans were key in highlighting the need for international cooperation to restore these habitats for their carbon removal functions, as well as to combat the loss of biodiversity. In these sessions, many

presenters addressed actions for reforestation and recovery of degraded lands, and for tackling the problem of plastic waste and marine plastic litter.

Discussions also focused on how countries can best leverage the large amount of public spending currently allocated under pandemic recovery packages. An estimated US\$16 trillion is available globally, a once-in-a-lifetime opportunity to invest in the infrastructure and technology that will be needed to truly bend the curve on GHG emissions. ROK’s recent Green New Deal was welcomed as a model of how public expenditure is being allocated specifically for green investments, technology, and international collaboration in areas such as development of alternative fuels and smart cities.

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The week closed on a hopeful note, with an array of practical projects presented by youth participants from the 2021 Global Youth Climate Challenges (GYCC) conference. Many projects employed digital technology and online platforms in innovative ways. For example, the Poo-E project generates user credits for the use of biodegradable bags to collect pet feces, a source of methane, and the Hero4Zero platform matches prospective corporate donors with excess stock to dispose of with recipients who can use those items.

Green Future Week convened from 24-29 May 2021 in a virtual format due to the COVID-19 pandemic, and in the lead up to the 2021 P4G Seoul Summit, which took place from 30-31 May.

### A Brief History of P4G

ROK created P4G as a platform for brokering market-based partnerships and impact investments. Established in 2017, in the wake of the 2015 adoption of the Sustainable Development Goals (SDGs) and the Paris Agreement on climate change, P4G acts as a delivery mechanism to boost implementation of related international goals and targets through partnerships.

P4G promotes partnerships in five focus areas corresponding to SDG 2 on food and agriculture, SDG 6 on water, SDG 7 on energy, SDG 11 on sustainable cities and communities, and SDG 12 on responsible consumption and production. The platform acts as a bridge to highlight common interests among developed and developing countries.

P4G's network partners include 12 governments: Bangladesh, Chile, Colombia, Denmark, Ethiopia, Indonesia, Kenya, Mexico, the Netherlands, ROK, South Africa, and Viet Nam. P4G also has five organizational partners: World Resources Institute (WRI), World Economic Forum (WEF), the World Bank Group's International Finance Corporation (IFC), Global Green Growth Institute (GGGI), and C40 Cities. Other institutional partners include the International Water Association, NDC Partnership, Food and Land Use Coalition, Sustainable Development Investment Partnership (SDIP), Blended Finance Taskforce, and Platform for Accelerating the Circular Economy (PACE).

Since its launch, P4G has channeled investments of more than US\$292 million into public-private and multi-stakeholder partnerships for an inclusive and sustainable future.

P4G organized its first global summit from 19-20 October 2018 in Copenhagen, Denmark. With more than 800 participants, the First P4G Summit sought to form a global coalition for sustainable growth through innovative partnerships, with particular attention given to cities as important centers of economic activity. Participants from more than 50 countries included heads of state and government from Denmark, Ethiopia, ROK, the Netherlands, and Viet Nam, as well as CEOs and green growth champions from the public and private sectors.

The First P4G Summit developed partnerships to scale up the use of electric vehicles (EVs) in bus transport around the world, promote green urban logistics systems linked to online shopping in China and elsewhere, and combat food loss and waste in Indonesia, among other initiatives. Summit participants endorsed the Copenhagen Commitment to Action, which pledged to enhance action on climate change and the SDGs. The outcome document highlights the need for government, business, and civil society to work together on the transformation toward a sustainable global economy. It points to SDG 17 on partnerships as the key to unlocking market opportunities for concrete, sustainable solutions, and impact.

Green Future Week comes in the wake of several high-level events focused on climate and the net-zero transition, including the fifth session of the Ministerial on Climate Action, the Leaders Summit on Climate, and the 12th Petersberg Climate Dialogue, all of which took place virtually.

The 2021 P4G Seoul Summit, a hybrid in-person and online event that followed Green Future Week, served as a stepping stone towards the 26th session of the Conference of the Parties to the UN Framework Convention on Climate Change (COP 26), scheduled for November 2021 in Glasgow, UK.

### Report of the Meeting

#### Opening Segment

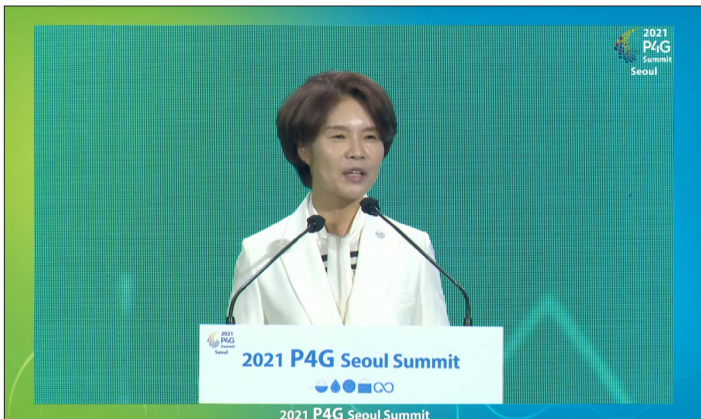
Green Future Week opened on Monday, 24 May, with a video message from environmentalist Jane Goodall, who highlighted some consequences of human disrespect for the natural world. She drew links between the COVID-19 crisis, and forest loss and the wildlife trade, which has allowed pathogens to jump from animal to human hosts. Similarly, she noted the current climate crisis has been caused by the reckless burning of fossil fuels. She reminded participants that the world depends on nature for food, water and other necessities, and urged everyone to protect biodiversity and ecosystems as “the tapestry of life.”

Participants then viewed a video titled, “The Voice of the Future,” featuring messages from child and youth representatives that urged action on climate change for a green future.

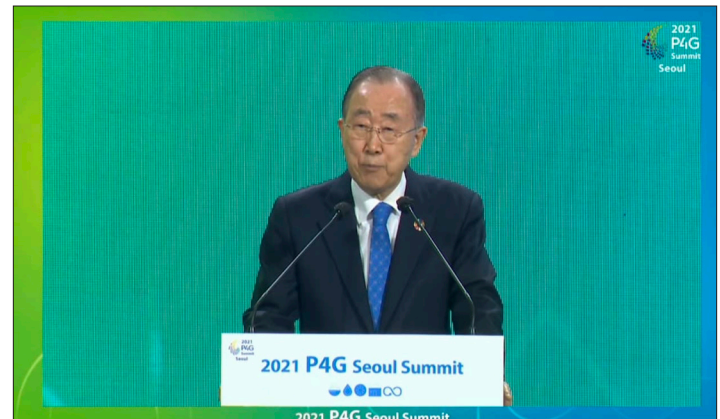
In opening remarks, Chung Eui-yong, Minister of Foreign Affairs, ROK, stressed that tackling climate change is key to ensuring world peace and the planet's sustainability. The P4G Green Future Week, he noted, will chart a path to green growth and contribute to achieving carbon neutrality goals by 2050.

Jeon Hae-Cheol, Minister of the Interior and Safety, ROK, quoting Winston Churchill who said “We should never let a good





**Han Jeoung-ae**, Minister of Environment, ROK



**Ban Ki-moon**, President and Chair, GGGI

crisis go to waste,” called for a focus on green post-pandemic responses. He highlighted the Korean New Deal comprising the Digital New Deal and the Green New Deal, which support green employment and social safety nets, respectively.

Han Jeoung-ae, Minister of Environment, ROK, announced that Korea will soon be passing a Carbon Neutrality Act, which will focus on innovation including measures such as offshore wind power, eco-friendly transportation, and green financing.

In a choreographed display of “Our Promise for Climate Action,” youth, civil society, and private sector representatives displayed their respective commitments to support green growth and sustainable livelihoods. Ministers at the meeting also raised banners pledging support for “one green movement” around the world.

### ***Action of Local Governments Towards Carbon Neutrality***

Moderator Lee Sun-kyung, External Relations Officer, 2021 P4G Seoul Summit Secretariat, introduced a diverse line-up of high-profile speakers on Monday.

**Opening and Keynote:** Han Jeoung-ae, Minister of Environment, ROK, highlighted the Korean government’s ambition to reduce its GHG emissions from the current level of 730 million tons a year to carbon neutrality by 2050, noting this will require a reduction of 15 million vehicles by that time. She noted this will involve “a grand transformation of society” for a national transition to clean energy, zero-energy buildings, and eco-friendly mobility. These changes, she stated, will only be possible with the commitment of local communities and local governments. She noted that 40% of current emissions, 290 million tons, are managed by local governments, and welcomed their work as the cornerstone for locally-driven efforts toward carbon neutrality.

Ban Ki-moon, President and Chair, GGGI, and former UN Secretary-General, gave examples of the scale of global change due to the climate crisis, including the loss of a major iceberg the size of the UK, and extreme rainfall resulting in dozens of casualties in ROK the previous summer. He welcomed the ROK’s carbon neutrality goal, adding that the national government cannot achieve this alone. He underscored the importance of reflecting the conditions, needs and voices of

diverse local areas, with local governments proactively leading the efforts. While the 20th century was an era of growth, the 21st, he said, is “the era of environment.”

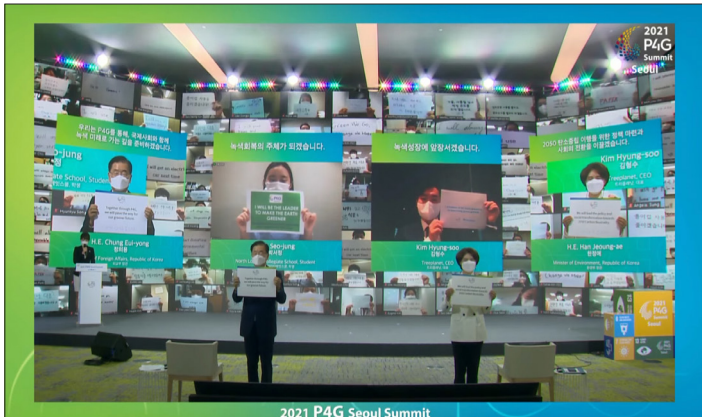
Jeon Hae-Cheol, Minister of the Interior and Safety, stressed that climate neutrality is the most important goal for the current generation, and will require cooperation on all fronts for an inclusive green recovery. He welcomed the Green New Deal that will transform Korea’s economy to a carbon-neutral one, and highlighted his Ministry’s agreement with ICLEI to promote cooperation on a green transition.

Kate Raworth, economist and co-founder, Doughnut Economics Action Lab (DEAL), in a keynote address, highlighted the goal of the doughnut model to meet the needs of all people within the means of our planet. Raworth presented a “compass for human prosperity,” which integrates the SDGs, showing that no country has been successful in meeting the needs of its citizens while staying within planetary boundaries. Calling for new economic approaches to the planetary crisis, she critiqued the linear and degenerative industrial processes that have created a “take-make-use-lose” approach to resources, which is ultimately threatening life on this planet.

To reverse this trend, she noted several promising examples, including Melbourne’s wind farm investments, Amsterdam’s commitment to a fully circular economy by 2050, Portland’s deconstruction of houses to reuse their building materials, and the “sponge city” approach of Gunli, China, which enables the city to connect with natural water resources and ecosystems. She called for creating cities that are “distributive by design,” noting, for example:

- dedicated bus lanes that have provided fast and affordable mobility in Curitiba, Brazil, since the 1970s;
- recognition of housing as a human right in Vienna, Austria, where over 60% of the population lives in housing run by city cooperatives;
- urban farms or “agri-hoods” in Detroit, US, which distribute food to poor families; and
- encouragement of cycling in place of driving cars in Paris, France.

In conclusion, she called for moving from divisive to distributive policies and practices to bring humanity into the doughnut.



Participants show their carbon neutral pledges

**Presentation of Pledges:** Moderator Lee then displayed a “climate crisis clock” with its hands pointing to 9:47 pm. She called on all present to take action to slow down the clock, and invited local governments to present their pledges for action to do so. The ROK’s 243 local government authorities presented their pledges for action to achieve carbon neutrality, with several representatives taking to the stage and many more joining in this moment of unity online.

The session then moved on to showcase the work carried out by local governments around the world to achieve climate neutrality.

Gino Van Begin, Secretary General, ICLEI – Local Governments for Sustainability, praised the ROK’s local government authorities for their recent declaration of a climate emergency. He said actions at the local level are key to ensuring carbon neutrality. He cited ICLEI’s roadmap to raise ambition for cities and local governments to join “the race to zero” by encouraging ambitious reductions by 2030.

Katja Dörner, Mayor of Bonn, Germany, reported on the participatory process, Bonn4Future, which was launched in 2020 as a bottom-up approach for bringing together different stakeholders and encouraging citizen participation in achieving climate neutrality. She said the priority for Bonn is renewable energy and technological innovation to transform mobility and mobility patterns.

Eui-sun Chuang, Chairman, Hyundai Motor Group, ROK, reported on his group’s advancements in clean mobility solutions.



Katja Dörner, Mayor of Bonn, Germany

He noted that, by 2022, city garbage trucks in the ROK will be powered by hydrogen fuel cells.

**Interactive Panel Discussion with ROK Local Government**

**Authorities:** Local government authorities from ROK then shared their policies and practices toward carbon neutrality at the sub-national level. The discussion was moderated by Park Jeong-Hyeon, Mayor, Daedeok-gu.

Yang Seung-jo, Governor, Chungcheongnam-do, reported on the phase-out of outdated coal power plants in his region and the adoption of carbon-neutral policies. He cited the value of international cooperation to achieve local-level goals.

Kwon Young-jin, Mayor, Daegu Metropolitan City, said the implementation of policies should be participatory in nature in order to address the needs of local communities. He highlighted efforts in transforming outdated industrial energy sources through renewable energy and tree-planting initiatives aimed at cooling the city.

Discussing the role of local government in climate data inventory, Hwang Myeong-seon, Mayor, Nonsan, called for clarifying roles and activities of local governments, standardized formats for data collection, and adequate financial resources for inventory and monitoring.

Park Seung-won, Mayor, Gwangmyeong, emphasized the need for citizen involvement, and highlighted citizen-led cooperatives such as its solar power cooperative, citizen education campaigns, and platforms for dialogue such as the net zero cafe for training.

Participants then viewed a video featuring carbon-neutral cities in the ROK, focusing on what local authorities are doing to achieve net zero emissions.

**Presentations from Local Government Representatives:**

During this segment, participants heard from five local government representatives on practical measures and strategies for partnerships toward carbon neutrality.

Jacob Bundsgaard, Mayor, Aarhus, Denmark, noted that the local government authority’s own operations are responsible for just 10% of GHG emissions, with the rest coming from households and industry—and that, therefore, citizens and businesses play an essential role in partnership. He reported that Aarhus is halfway to achieving the 2030 carbon neutrality target, and that tackling transport emissions are “the biggest and most important part” of this endeavor.

Simon Chrisander, Deputy Mayor, Malmö, Sweden, outlined his city’s investment and procurement approaches for climate neutrality, including:

- municipal investment in solar panels on roofs of industrial buildings, as a means to encourage transition to at least 15% energy from renewable sources;
- city contracts with builders and developers, including environmental and social clauses for job creation and climate-neutral construction;
- municipal buildings such as schools and day care using 100% renewable energy; and
- partnerships with companies on “climate transition” projects, including current work on geothermal energy exploration.

Won Hee-ryong, Governor, Jeju Province, ROK, highlighted renewable energy trials through: the creation of ROK’s largest



smart-grid demonstration site; achieving carbon neutrality on a small island off Jeju; and establishing offshore wind turbines as an 8 MW “floating farm.”

Won acknowledged that wind and solar energy fluctuations led to 77 power generation stoppages in the previous year. He reported further developments, including efforts to produce “green hydrogen” as a clean fuel through an electrolysis process and connecting Jeju’s 20,000 EVs to provide leftover battery power back to the grid. He highlighted his recent proposal to form a Green Growth City Alliance.

Daniel Quintero Calle, Mayor of Medellin, Colombia, emphasized the need to shift towards an economy based on knowledge and investments in education. He noted the city’s programs such as “one child, one computer” and zero-tuition university programs, referring to universities as sites of the Fourth Industrial Revolution.

Anil Kumar, Mayor of Kochi, India, highlighted efforts for institutional strengthening and stakeholder capacity development, in addition to undertaking low-carbon projects. He noted Kochi’s target of “zero street-level pollution” to be achieved through transport initiatives including: bicycle lanes in the city; 1,000 buses creating a feeder network to the Kochi metro line; multi-modal transport that includes waterway-to-road connections; and transport between flight hubs.

**Interactive Panel Discussion:** Park Yeon-hee, Director, ICLEI Korea office, moderated a further discussion with Korean and international speakers on how ROK local governments can put their carbon-neutral pledges into action.

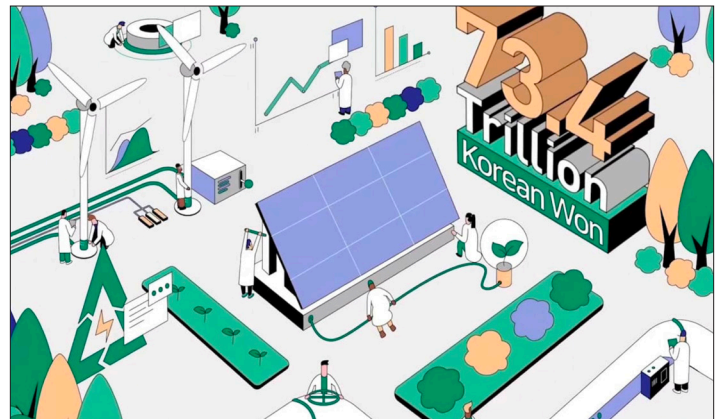
Song Ha-jin, Governor, Jeollabuk-do, ROK, described how the local government authority gained public acceptance for a 5 gigawatt (GW) floating photovoltaic power plant in the Saemangeum area. He noted the authority had created a public-private consultative body that consulted with stakeholders, including local fishers who were concerned about the impacts of the power plant on their livelihoods.

Tony Clamp, Green Climate Fund (GCF), cited the Green Cities Facility, a joint investment by the GCF and the European Bank for Reconstruction and Development (EBRD), which provides sustainable, green investment for urban resilience. He further referred to the Sub-national Climate Fund Global aimed at catalyzing long-term climate investment at the sub-national level.

Kim Hong-jang, Mayor, Dangjin, ROK, discussed a just energy transition in his city, underlining strategies to transition from coal to renewable energy. He reported that the ROK’s Green New Deal and its carbon neutrality target has gained acceptance by citizens, ensuring training of former coal industry workers for jobs in renewables.

### **Green New Deal: Clean Transition to the Green Economy**

The GCF and the Ministry of Economy and Finance, ROK, co-hosted this session on Tuesday, 25 May. The session opened with a video about Korea’s Green New Deal, adopted in 2020, which enables the investment of 73.4 trillion won (more than US\$66 billion) by 2025. The Deal aims to ensure a clean and green recovery from the pandemic through investment in digital infrastructure, renewable energy, job creation, and social safety nets.



The Republic of Korea's Green New Deal

**Opening Remarks:** Hong Nam-ki, Deputy Prime Minister and Minister of Economy and Finance, ROK noted that 2021 is the first year of comprehensive implementation of the 2015 Paris Agreement on climate change. He emphasized that carbon neutrality can be a vehicle for economic growth. He described the ROK’s Green New Deal as more than a short-term stimulus package, as it has clear goals and a timeline. He noted that a just transition for workers will be ensured through clear communication, re-employment opportunities, and building widespread social consensus. He further noted that commitment at the highest level is assured through a strong implementation framework, including a special committee on carbon neutrality, co-chaired by the Prime Minister and a business representative.

Ban Ki-moon, President and Chair, GGGI, noted that currently US\$16 trillion is available from central bank recovery packages worldwide, and urged the global community to seize this unique opportunity to build back better in alignment with the SDGs and Nationally Determined Contributions (NDCs) under the Paris Agreement. He expressed optimism in view of the successful negotiation of the Paris Agreement in 2015 “despite overwhelming odds against multilateralism,” the adoption of the European Green New Deal in 2019, and renewed commitment and leadership by the US in 2021. He noted that companies’ interest in green investment, coupled with improved accessibility of low-cost technological advances, are also grounds for hope.

Alok Sharma, President of the 26th session of the Conference of Parties to the UN Framework Convention on Climate Change (COP 26), UK, commended the ROK’s commitments to net



Alok Sharma, COP 26 President, UK



Yannick Glemarec, Executive Director, GCF

zero emissions, urging other governments to follow suit. He underscored that the ambition of limiting global temperature rise to 1.5°C will require halving carbon emissions by 2030 through investing in a green recovery from the pandemic. Adding that the UK is the first G7 country to commit to the net zero target, he urged all concerned to end new direct government support for international coal power by the close of 2021.

**Keynote Address:** Yannick Glemarec, Executive Director, GCF, presented the findings of the 2020 GCF working paper, [Tipping or Turning point: Scaling up Climate Finance in the Era of COVID-19](#). He reported that blended public and private finance has proven effective for technologies aimed at major markets, cautioning they are less effective for early-stage technologies in emerging markets. He further reported that the slow channelling of financial resources to developing countries has resulted in an investment gap. Glemarec recommended innovative financing instruments to increase developing countries' access to climate finance without further increasing their sovereign debt. Glemarec concluded that scaling up climate finance can be achieved through supporting integrated policies that allow “building back better” while increasing climate ambition and access to the green bond market.

**Panel Discussion on Inclusive Green Recovery Towards Carbon Neutrality:** Frank Rijsberman, Director-General, GGGI, moderated the panel, which addressed ways of ensuring pandemic recovery financing supports greening, and that developing countries are not left behind.

Responding to the first issue, Masamichi Kono, Deputy Secretary-General, Organisation for Economic Co-operation and Development (OECD), highlighted the OECD green recovery tracking database. He reported that, so far, US\$337 billion has been channelled into green recovery measures in 43 countries. He observed the need for common methodologies and monitoring tools to ensure comparability of green recovery initiatives. He recommended that private finances be aligned to public green infrastructure investments, and for mechanisms to monitor responsible business conduct, transparency, and accountability.

Beata Javorcik, Chief Economist, EBRD, said maintaining a climate lens in green recovery is a challenge. She noted that in the transition to renewable energy, for example, workers

who have lost coal mining jobs do not automatically gain new employment in green jobs. She explained that the green jobs created may require relocation to other areas, a constraint for workers. She further added that benefits of greening activities are not immediate but rather long-term, which often hinders citizens and private sector investors' appreciation of green economy opportunities.

Patrick Dlamini, CEO, Development Bank of Southern Africa, encouraged investments in renewable energy and waste management in emerging economies. He emphasized the critical role of central banks in supporting public financing of green recovery, and the role of civil society in monitoring implementation.

Tsevegjav Gumenjav, CEO, Xacbank, Mongolia, reported on Xacbank's Business Loan Program for emission reductions, implemented with the GCF. The US\$50 million program, he explained, provides loans to micro, small and medium-sized enterprises for energy efficiency and renewable energy projects. He highlighted that two-thirds of the financing is from the Mongolian government and Mongolian commercial banks.

Hyungna Oh, Kyung Hee University, ROK, advocated for climate resilience metrics that will complement adaptation finance tracking and help scale up financial flows. She further urged strong policies for carbon pricing.

On financing for developing countries, speakers encouraged projects that benefit low-income and rural dwellers, such as support for municipal waste management systems and minigrids that allow households to generate income by selling unused electricity to neighbors. They noted the importance of green bonds in driving investments for sustainable development, such as an EBRD bond that imposes higher interest rates if borrowers do not fulfil sustainability commitments within a certain period.

Javorcik cited an EBRD survey of 20,000 firms in emerging markets, which showed information asymmetry was a greater barrier than lack of finances for investing in energy-saving measures.

Oh called on multilateral development banks to work with the World Trade Organization so that intellectual property rights do not prevent diffusion of knowledge across borders.

On the possibility of debt-for-climate swaps, Kono cited lessons learned from the Seychelles' debt-for-nature swap, and the G20 Debt Service Suspension Initiative, which, he said, have shown the need for clear indicators progress and quantitative tracking. He concluded that governments need to consider issues of transparency, consistency, comparability, and ability to price risk, as they seek to create a conducive environment for mobilizing private finance. He looked forward to the OECD's International Program on Action for Climate, which will help countries measure their own progress against climate goals and develop strategies for implementation.

In closing, Glemarec said the pandemic has brought the world to a turning point, and that the transition must be just and fair, with the right policies and instruments chosen to incentivize the private sector.





**Vandana Shiva**, Standing Director, International Forum on Globalization, India

### ***Civil Society: Just and Green Recovery from Grassroots Engagement***

On Tuesday, Ayeong Moon, Co-Chair, Korea CSOs Network to the 2021 P4G Summit, moderated this session, during which CSOs discussed grassroots partnerships in green recovery.

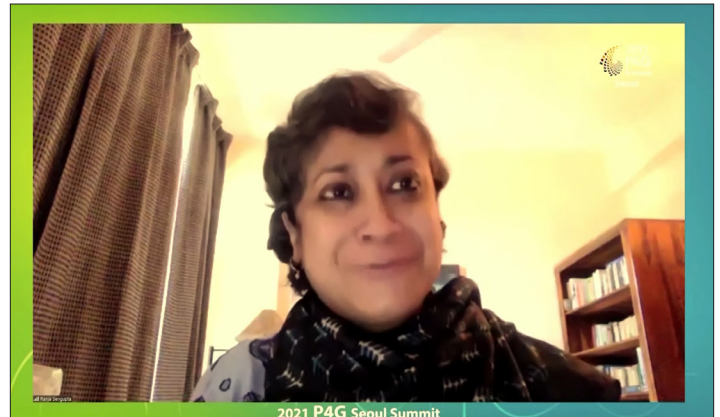
In opening remarks, Han Jeoung-ae, Minister of Environment, ROK, highlighted the important role CSOs play in monitoring green recovery effectiveness. She further noted CSOs are key in public-private partnerships (PPPs) at the national and grassroots levels.

Vandana Shiva, Standing Director, International Forum on Globalization, India, referred to CSOs as the heart of democracy, the conscience of society, and the voice of nature. She noted that governments' role in the green economy should include protecting citizens from unscrupulous investors who violate environmental laws. Partnerships with such corporations, she cautioned, lead to hijacking democracy and could lead to the "privatization of states."

Moon Seok-jin, Mayor of Seodaemun-gu, Seoul, ROK, emphasized that central and municipal governments and civil society must work together, and observed that international solidarity will give greater strength to each other's efforts.

**P4G Partner Dialogue:** Kim Tae-kyoon, Professor, Seoul National University, moderated the panel discussion. He invited panelists to comment on: how P4G promotes inclusiveness and sustainability; and what distinguishes the platform from regular outsourcing.

Yoo Yeon-chul, P4G Board Member and Ambassador for Climate Change, Ministry of Foreign Affairs, ROK, explained that P4G, unlike other international bodies, is a multilateral platform that includes governments, businesses and civil society, in recognition that no single actor can deliver the solutions needed to address the global issue of climate change. He noted that civil society can play a role through monitoring, for example, the situation of vulnerable people in the context of the just transition. He further explained that government action takes place to address market failures, and pledged that P4G will not shift responsibility for providing public goods and services from the public to the private sector.



**Ranja Sengupta**, Third World Network

Ranja Sengupta, Third World Network, cautioned participants that PPPs may increase governments' liabilities and costs, while transferring gains to the private sector, without necessarily achieving higher cost efficiencies. She warned that PPPs may not cross-subsidize the poor in the way that public services do. She urged countries not to compromise on SDG 10 on reducing inequalities. She drew attention to lessons drawn from the pandemic, in which the supply of vaccines, masks, ventilators and other necessities have been monopolized by private corporations, and intellectual property rights have been used to maintain aggressive control of technology. She further called for a waiver of intellectual property rights over vaccines in the context of the pandemic.

Sengupta warned that governments are losing ownership and control of biometric and other data, potentially compromising citizens' rights to privacy. She highlighted monitoring, regulation and accountability of private-sector partners as key issues for the management of PPPs, and called on businesses to support the rules and processes already in place.

Xabier Ochandiano, Bilbao City Council, Spain, highlighted the importance of social cohesion, decent jobs and just transitions. He noted that a democratic, participatory and transparent management of natural resources is the foundation of a solidarity economy. He highlighted: Bilbao's Charter of Values, which reflects the principles of social and solidarity economy; and the Bilbao City Council Mandate Plan 2019-2023, which supports, among others, PPPs and CSO involvement to achieve the city's aspirations for social and solidarity economy.

Gyeonghyo Yoon, Executive Director, Korea CSOs Network to the 2021 P4G Summit, highlighted that market-driven solutions should ensure grassroots interests of producers are taken into account. Markets, she added, should be more inclusive and ecologically sustainable.

Participants thereafter viewed a video compiled by the Korea CSOs Network showcasing ten socioeconomic grassroots projects and activities of CSOs around the world. The videos demonstrated four dimensions of the green recovery.

On ecological recovery, the videos featured:

- the ROK's protection of local biodiversity and habitats through ecotourism in Jeju Island;
- Togo's youth-led project on soil recovery and poverty reduction through agroecology; and
- Mexico's agroecology activities supporting soil recovery and food sovereignty in Guerrero village.

On community social recovery, the videos showed:

- ecologically-friendly lifestyles driven by young people in Mokpo, ROK; and
- a project in Montreal, Canada, aimed at invigorating a social and economically vulnerable village through local art and culture.

On green lifestyle recovery, the videos presented:

- the promotion of a circular lifestyle for zero waste through local community-based refill stations in the ROK; and
- Hong Kong's consumer-led lifestyle movement for social change through purpose-driven green enterprises.

On green economy ecosystem recovery, the videos illustrated:

- the promotion of agroecology and environmentally-friendly food markets through Korean consumer cooperatives;
- scaling up Ansan City solar power plants to contribute to the Korean renewable energy power plant industry; and
- a recycling project in Bordeaux, France, implemented through a consumption model based on social and ecological values.

In closing remarks, Yunju Jo, Korea CSOs Network to the 2021 P4G Summit, read out a prepared statement from CSOs, which: noted that the CSOs Network expressed concern that military spending and vaccine nationalism have risen during the pandemic; called for representation of local communities alongside government and business interests; and urged monitoring and accountability of the more than 50 partnerships currently supported through P4G, based on publicly-available criteria.

### **Building Back Bluer Through Oceans**

On Wednesday, 26 May, the ROK's Ministry of Oceans and Fisheries hosted the day's discussions, which took place in two segments. The first focused on carbon neutrality in maritime shipping, and the second addressed strategies to address marine plastic litter.

**Carbon Neutrality in Maritime Shipping:** Moon Seong-hyeok, Minister of Oceans and Fisheries, ROK, reminded



Moon Seong-hyeok, Minister of Oceans and Fisheries, ROK

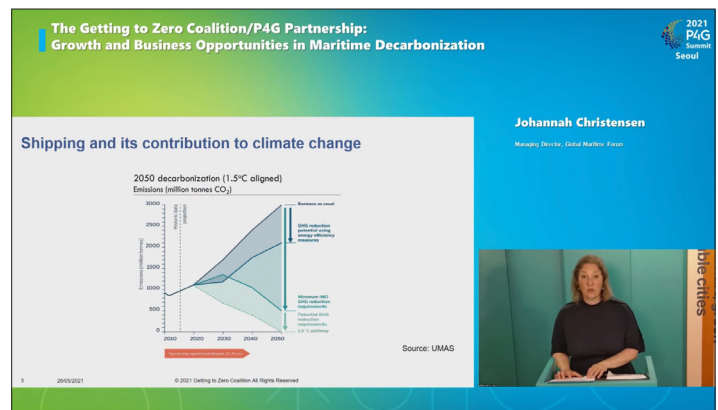
participants that sea routes play a crucial role in international trade, carrying 90% of global trade and 99% of ROK's import and export cargo. He highlighted that emissions from maritime transport in 2019 outweighed the ROK's total emissions and will account for 10% of global emissions by 2050 if no corrective actions are taken. He pledged to: expand the share of low-carbon or zero-carbon vessels fueled by liquefied natural gas (LNG), hydrogen or ammonia fuels; turn Korean ports into global hydrogen energy transport hubs; and expand coastal wetlands as carbon sinks, including 54,000 hectares of marine forests that will enhance blue carbon sequestration.

Kitack Lim, Secretary-General, International Maritime Organization (IMO), drew attention to the IMO's 2018 commitment to reduce annual GHG emissions from maritime shipping by 50% from 2008 levels by 2050. He called for investment in research and development and collaborations through PPPs, development banks and academia to make shipping a key ally in the fight against climate change.

Luhut Binsar Pandjaitan, Coordinating Minister, Maritime and Investment Affairs, Indonesia, emphasized that marine transportation is of paramount importance for Indonesia's 272 million people spread across more than 17,000 islands. He reported that energy transformation accounts for 11% of Indonesia's NDC toward climate mitigation. He highlighted Indonesia's strategy to reduce the carbon intensity of its shipping fleet by at least 40% between 2023 and 2030, and to achieve a 50% reduction of total emissions by 2050. He noted, for example, that Indonesia's Ministry of Transport has modified its shipping vessels to use solar cells to power navigation systems. He further highlighted Indonesia's efforts to conduct large-scale mangrove replanting and rehabilitation up to 2024, with more than 2,000 types of mangrove species and 150,000 hectares of coastline being planted in 2021.

Participants then watched a video on zero emission vessels.

Johannah Christensen, Managing Director, Global Maritime Forum, discussed the work of the P4G [Getting to Zero Coalition](#), highlighting growth and business opportunities in maritime decarbonization. She said US\$1-1.4 trillion investment is required between 2030 and 2050 to achieve decarbonization in the maritime sector. She reported on decarbonization partnerships, including: wind and solar power energy in South



Johannah Christensen, Managing Director, Global Maritime Forum



Africa and Mexico for clean energy along shipping routes; and Indonesia's biofuel potential from waste to support key shipping routes, such as the Strait of Malacca.

Narae Han, Daewoo Shipbuilding and Marine Engineering Company, ROK, highlighted ground-breaking low carbon solutions through ammonia fuel ships. She presented the smart center for shipbuilding process, which shares real-time production information on equipment performance, fuel consumption and other issues to enable quick decisions and productivity improvement. She discussed collaboration with Lloyd Register and MANN Energy Solutions to develop ammonia-fuelled ships. She reported challenges due to ammonia fuel tanks being almost three times bigger than oil tanks, and the erosive and toxic nature of ammonia. Risk analysis, she said, is therefore a primary undertaking in the project.

Participants then viewed a video featuring conditions at the ROK's Antarctica station, where plant reproduction now occurs in the warmer winters, and researchers have become accustomed to hearing ice walls collapsing in their vicinity.

**Panel Discussion:** Booki Kim, President, Korea Research Institute of Ships and Ocean Engineering, moderated the first round of discussion, posing questions to panelists about technology sharing and public-private cooperation.

Anne Steffensen, CEO, Danish Shipping, Denmark, acknowledged that achieving the zero-carbon target will entail much change in the shipping industry as the sector begins to adopt new fuels in place of fossil fuels. She observed that 90% of the investments needed to decarbonize shipping must be made on land, through research and development, and transition projects. She also noted that customer requirements for zero-carbon fuels will be a strong driver of change, led by major shipping clients such as IKEA.

Steffensen cited promising developments, such as Merck's announcement that it will launch a carbon-neutral container vessel by 2023, powered by sustainable bio-methanol from non-food crops. She observed that, while interest has increased in the use of LNG-fueled vessels, LNG is still a fossil fuel and a risk still exists regarding "lock-in" to a technology that will soon be outmoded.

Allard Castelein, CEO, Port of Rotterdam, the Netherlands, stated that the port aims to be fully carbon neutral by 2050. He highlighted the need for collaboration among shipping lines, engine manufacturers and others to collectively develop the hardware and energy conductors needed to become "early movers rather than late adopters" of alternative fuels. He noted developments in the area of electrification and use of container-sized batteries, which can be loaded on and off vessels by barge as needed, the adoption of alternative fuels for shore power, and the use of Internet of Things (IOT) platforms to increase efficiency of vessel movements into and out of ports.

Mark Darley, President for Marine and Offshore, Lloyd's Register, pointed out that the transition from coal to oil in the maritime sector took 50 years. He noted that the challenge of achieving the 2030 goals in nine years is not due to the lack of viable technologies but to challenges of optimization for deployment in commercial vessels.



**Peter Thomson**, UN Secretary-General's Special Envoy for the Ocean, Fiji

Jae-hoon Bae, CEO, Hyundai Merchant Marine, said the shipping industry is tightening its operations to minimize GHG emissions from vessels from construction to operations. The Korean Ministry of Oceans and Fisheries, he reported, has initiated programs for energy saving devices in shipping vessels.

Lee Sung-geun highlighted testing of ammonia, methanol, and hydrogen fuel vessels, noting that ammonia has a more favorable result in transportation, production, and storage.

**Marine Plastic Litter:** Peter Thomson, UN Secretary-General's Special Envoy for the Ocean, Fiji, warned that a healthy planet depends on a healthy ocean, which is currently in decline. He noted that GHG emissions are causing acidification and ocean warming, resulting, for example, in the death of coral reefs and other uncertainties as marine ecosystems are changing. He further warned of the impacts on human health as microplastics have entered the food chain, and cited evidence of nanoplastics crossing the blood-brain and placental barriers,

Thomson said 11 million tons of plastic waste reaches the ocean annually, with the figure set to double by 2030 and possibly triple by 2040, unless immediate action is taken. He called for a levy on the production of virgin polymers, which could fund developing countries to undertake best practices in waste collection and management. He anticipated that the impacts of such a levy would also lead to recyclable polymers being preferred. He welcomed efforts toward a global treaty on plastic pollution, which could be a focus of the resumed session of the UN Environment Assembly (UNEA) when it convenes in Nairobi, Kenya, in 2022.

Per Bolund, Deputy Prime Minister and Minister for Environment and Climate, Sweden, reminded participants that



**Per Bolund**, Deputy Prime Minister and Minister for Environment and Climate, Sweden

SDG 14 (life below water) addresses “a blue world full of life” in the world’s ocean, noting, however, that more plastics than fish will be in the sea by 2050. He called for a coordinated approach to addressing the full lifecycle of plastics and the removal of single-use plastics from the market. He cautioned that the future depends “not only on innovative solutions, but on how we live our lives day to day.” He highlighted a global agreement on plastics as a key priority for Sweden and welcomed the recent discussions at the UN *Ad Hoc* Open-Ended Expert Group on Marine Litter and Microplastics. He invited the ROK to support such an agreement, and thanked Ecuador, Germany, Ghana, and Viet Nam for their role in these discussions.

The Ministry of Oceans and Fisheries, with the Partnerships in Environmental Management for the Seas of East Asia (PEMSEA), then held a signing ceremony to launch a new alliance, the East Asian Seas Initiative on Clean Oceans. The Initiative includes NGO partners from the Philippines, Indonesia and Viet Nam, and will build capacity and demonstrate best practices in the management of marine litter.

Moon Seong-hyeok, Minister of Oceans and Fisheries, congratulated and welcomed the partners in the Initiative as international players in the fight to protect the ocean as global commons. He observed that use of plastic products has surged during the pandemic, and announced that his Ministry, together with the Ministry of Environment, will cooperate to stop the inflow of land-based waste into oceans. He announced the development of a container deposit-refund system by 2023 to incentivize the return of reusable containers and the use of biodegradable ones. Other measures, he noted, include an adopt-a-beach project, which is: being undertaken through private-sector and other organizations; employing rangers who will monitor illegal waste dumping at sea in cooperation with fishing communities; and building capacity in marine litter management. He looked forward to the Seventh International Marine Debris Conference scheduled for September 2022 and hosted by the ROK in collaboration with the UN Environment Programme (UNEP).

Aimee Gonzales, Executive Director, PEMSEA, highlighted PEMSEA’s goal as a regional cooperation mechanism to have “zero plastic” seas by 2030, noting that 90% of plastic pollution comes from just 10 rivers worldwide. She framed the waste problem as “a peace and order problem” as the global impacts are extremely damaging with studies showing, for example, that 73% of deep-sea fish have plastics in their stomachs. She highlighted PEMSEA’s work in implementing solutions for the circular economy, adding that plastic waste management must be part of an effective solid waste management system, with no single sector being able to tackle the challenges alone. She pledged to ensure that citizen science contributes to knowledge in this area.

Boyan Slat, CEO, The Ocean Cleanup, the Netherlands, then responded to interview questions posed by Joost Dubois, the organization’s head of communications. Slat anticipated that, by intercepting plastic waste at the mouths of rivers and conducting ocean cleanup, achieving a 90% reduction of plastic in the ocean by 2040 would be possible. He described efforts to refine the technology for collecting plastics in the Great Pacific Garbage



Nicole LeBoeuf, NOAA's National Ocean Service, US

Patch, through the use of floating booms. Closer to land, he described current trials in Indonesia, Malaysia, Viet Nam, and the Dominican Republic to prevent plastic waste from reaching the sea. He anticipated rolling out this technology in 12 rivers by the end of 2021, and then scaling up to use it in 1,000 rivers. He emphasized that local partners and local government will be critical to the success of the project in each locality, including local government authorities, project managers, and installers.

**Strengthening Partnerships to Reduce Global Impacts of Marine Litter:** Nicole LeBoeuf, National Oceanic and Atmospheric Administration’s (NOAA’s) National Ocean Service, US, said prevention of waste is the ultimate solution for marine debris. She highlighted NOAA’s preventative projects within the US to raise awareness on the issue and enable lasting behavior change in citizens. She reported NOAA’s support to over 160 removal projects, which have tackled over 22,500 metric tons of marine debris since 2006.

Ky-Anh Nguyen, Director, Sustainable Development Directorate, Association of Southeast Asian Nations (ASEAN) Secretariat, discussed the activities of the Southeast Asia Marine Plastics Program (SEA-MaP) in tackling marine debris. He noted three areas of focus in addressing marine debris: reducing upstream input; enhancing waste management and minimizing leakage; and creating value. He cited the Bangkok Declaration and Framework for Action and ASEAN Regional Action Plan on Marine Debris as key guidelines for regional efforts in this area.

A panel discussion, moderated by Shim Won Joon, Korea Institute of Ocean Science and Technology (KIOST), addressed, among others, the paradigm shift required in plastic waste management, PPPs, and knowledge gaps in marine debris and plastic pollution.

Inger Andersen, Executive Director, UNEP, reported that the UN General Assembly in 2019 passed a resolution emphasizing the importance of strengthened coordination and multi-stakeholder cooperation to achieve long-term elimination of plastic discharge into the ocean. She emphasized that the lack of a global agreement on plastic wastes is no excuse for inaction, and urged governments to use national policies to impede and manage plastic pollution. She further noted the need for governments to strengthen policies to reduce, reuse, and recycle plastics and to implement the Polluter Pays Principle, as well as taxes to reduce plastic use in packaging.



Marco Lambertini, Director General, WWF International, said no silver bullet exists to address plastic pollution. He mentioned the need to address the source of plastics, and implement existing solutions, such as reducing and managing waste, investing in circularity of plastics, and innovations for sustainable alternatives. On promoting partnerships, he said common goals and plans of actions are necessary, noting the important role that businesses play in influencing policy change.

Michael Danagher, Canadian Ambassador to the ROK, highlighted legislature, involvement of indigenous communities, and private companies to eliminate wastes through the Ocean Plastics Charter. He also reported on the [Canada Plastics Pact](#) involving businesses, policymakers, and others to create a circular economy.

Hans Axel Kristensen, CEO, PLASTIX, Denmark, said plastics as a material are not a problem but rather their disposal into the environment is. He added that as a circular material, plastics are a resource for reuse and emphasized the need to intercept waste and recycling. Kristensen reported on a project with WWF Denmark and the government to reuse lost or abandoned fishing gear by converting it into pellets to be used to produce plastic items.

Hon Sang-hee, KIOST, reported her country's plan to ban the use of microplastics in products by 2022. She cited gaps in knowledge in microplastics and nanoplastics regarding their pathways, bioaccumulation, and effects on human health. She said without adequate information, the precautionary principle should be applied.

### ***Business Paradigm Shift in the Era of ESG and Green Tech***

On Thursday, 27 May, the Korea Chamber of Commerce and Industry (KCCI) hosted discussions on this theme, and moderator Su-yeon Lee, KCCI, introduced the two sub-sessions. The first focused on how companies create value in the face of global environmental challenges, and the second presented specific examples of the ways in which large companies are addressing these challenges.

Tae-won Chey, Chair, KCCI, noted that the goods and services provided by business activities, such as mining, transport, and power generation, do not reflect their environmental impacts, and that companies must be induced to price in these negative externalities. He proposed three mechanisms for doing so:



Tae-won Chey, Chair, KCCI



Juvenio Maeztu, CFO and Deputy CEO, Ingka Group (IKEA)

- accounting and valuation standards, such as the work being done by the EU Green Accounting Project and the Value Balancing Alliance;
- environmental or climate credits that are globally tradeable as a digital currency, to incentivize environmentally-friendly behavior; and
- collaboration among different actors at the global level to enable these steps.

Juvenio Maeztu, CFO and Deputy CEO, Ingka Group (IKEA), explained the company's commitment to keeping global warming within the 1.5°C limit, and its plans to be climate-positive by 2030. He reported business growth of 13.75% from 2016 to 2020, while reducing GHG emissions by 14%. He mentioned examples that show how "climate-smart" equates to being "resource-smart" at IKEA, such as: selling LED lights and home solar systems at low-cost and with energy-saving options; providing vegetarian "plant balls" to match the company's popular meatballs; and investing in a company that recycles mattresses efficiently.

Sarah Chandler, Apple, highlighted strategies to achieve carbon neutrality by 2030, including: establishing a Supplier Clean Energy Program to boost the use of renewable energy; ensuring all wood fiber in packaging comes from sustainably managed forests; using 40% recycled aluminum in MacBook Air casing; reclaiming gold and copper from iPhones for reuse; and partnering with WWF and The Conservation Fund on forestry programs that sequester more than one million megatons of carbon annually.

**Business Paradigm and the Way Forward:** This panel, moderated by Sung-woo Kim, Head, Environment and Energy Research Institute, ROK, discussed lessons learnt by businesses in ESG compliance.

Chitra Hepburn, MSCI Inc, said her company is reducing emissions in operations through adopting renewable energy and prohibiting single-use plastics, among other approaches. She noted that ESG can affect pricing of assets and determine financial returns. She described the use of discounted cash flow models to show how regulatory policies and green technologies influence financial markets. She reported that earnings, growth and performance of companies are directly affected by GHG







Jane Goodall, Jane Goodall Institute and UN Messenger of Peace

and ecological destruction continues. He discussed elements of a green recovery, including the need to address climate change and biodiversity loss in an integrated manner through nature-based solutions, and for more ambitious goals and policy roadmaps to achieve carbon neutrality goals. He concluded by saying “there is no planet B and therefore no plan B,” urging international cooperation to bend the curve on biodiversity loss and climate change.

In a video message, Jane Goodall of the Jane Goodall Institute, called on humans to come together and for each to play a part in restoring the healthy ecosystems that we rely on for our survival.

Choe Jae Chun, Ewha Womans University, reported that the past 100 years have seen a shift in bat distribution from the tropics to temperate areas due to climate change. He highlighted hot spots in southern China where bat species carry two to three strains of the coronavirus, which, she warned, can lead to new pandemics in the future. He said the current generation has been lucky with COVID-19, since vaccine development and deployment during previous pandemics took 10-15 years. Noting that we cannot rely on luck in the future, he called for behaviour change that would evolve humanity from *Homo sapiens* to *Homo symbiosus*, a being who shares the planet with other organisms.

Jong Soo Yoon, President, International Union for Conservation of Nature (IUCN) Korea, noted the world has fallen far short of meeting the 2020 Aichi Biodiversity Targets under the Convention on Biological Diversity (CBD). He stressed that nature-based solutions are key to countering climate change and biodiversity loss. He drew attention to the potential of National Trust Schemes, whereby companies purchase land of high conservation value to prevent undesirable development, as a means of achieving the Aichi Target on protected areas. He encouraged citizen scientists to use mobile technology to access biodiversity knowledge, as well as to collect and share data.

Hong Jong Ho, Seoul National University, presented the academic perspective on decision making with regard to environmental protection and the irreversible consequences of failing to do so. He noted that an early estimate, in 1997, placed the value of global ecosystem services at US\$33 trillion, and that conservation is a better option if the consequences of not undertaking conservation are irreversible.

In a Q&A session, speakers noted that zoonoses are increasing in frequency, from being once-in-a-generation events, such as the



Elizabeth Mrema, Executive Secretary, CBD

1918 Spanish flu, to occurring at two to three-year intervals in the 21st century, with outbreaks of the Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS), Ebola, avian flu, and swine flu all occurring before the COVID-19 pandemic. They noted the lack of political will to incorporate a biodiversity agenda in place of pro-manufacturing policies, and the need for both carbon pricing through emissions trading and carbon taxes, as well as incentives for businesses.

**Session Break:** In a session break, ROK Minister of Environment, Han Jeoung-ae, made a video call to the King Sejong Antarctica Research Station for a briefing on the day-to-day conditions. On the call, they discussed the shrinking of glaciers and the reckless overfishing that has led to a reduction in krill, one of the main food sources of a nearby penguin colony.

In a recorded video message, Elizabeth Mrema, Executive Secretary, CBD, urged everyone to recognize the interconnection of biodiversity and the health of our planet. She noted that 75% of emerging infectious diseases are zoonotic, and that reconciling our relationship with nature is one of the most secure, resilient, and sustainable solutions to the climate crisis. She stated that the CBD will be an active partner in the UN Decade on Ecosystem Restoration, which aims to reverse ecosystem loss.

Bruno Oberle, Director General, IUCN, said nature-based solutions are the key to addressing societal challenges sustainably and adaptively. He highlighted responses, including the organization’s forest landscape restoration projects in El Salvador to address climate change, and its Mangroves for the Future Initiative to restore mangroves and wetlands as safeguards against climate disasters along the Indian Ocean.

**Biodiversity Restoration as Seen by Natural Scientists:** Scientists from diverse fields gathered for this sub-session to provide insights on biodiversity restoration. The session also featured a forum discussion on the topic of biodiversity and climate change, organized by *Nature* and the Korean National Institute of Biological Resources.

Magdalena Skipper, Editor-in-Chief, *Nature*, said the COVID-19 pandemic has revealed that “no-one is truly safe until everyone is safe.” She explained that evidence-based decision making is the way to tackle ongoing climate and biodiversity loss emergencies. Discussing the role of science, she highlighted the importance of transparency in knowledge sharing, noting the

need to remove restrictions to data sharing and the free movement of scientists around the globe. She said interdisciplinary collaborative projects should be prioritized.

Tegan Armarego-Marriott, Editor, *Nature Climate Change*, welcomed participants to the forum on biodiversity and climate. Introducing the topic, Yeon-Jae Bae, President of National Institute of Biological Resources, highlighted the role played by his organization and *Nature* in supporting sustainable development through information sharing from studies conducted in natural sciences. He emphasized the need to increase awareness regarding living in harmony with nature in order to restore biodiversity.

Dolors Armenteras, National University of Colombia, described natural and cultural diversity of the Amazon, highlighting its role in regulating the planet's atmospheric moisture and temperature. She reported that deforestation since 1985 has led to the loss of over one million square kilometers of forest area, thus posing enormous ecological impacts globally.

Kate Jones, University College London, highlighted transmission pathways of zoonotic diseases due to habitat and species losses, noting the need to apply scientific findings in prevention of the next pandemic. She recommended nature-based solutions, describing these as actions to protect, sustainably manage, and restore natural and modified environments.

Gretchen Daily, Stanford University, said science needs to be accessible and actionable. She discussed a data software, [Integrated Valuation of Ecosystem Services and Tradeoffs \(InVEST\)](#), for mapping and valuing goods and services from nature, and exploring ways in which ecosystem changes affect the provision of these goods and services.

In a Q&A session, panelists affirmed the links between biodiversity loss and pandemics. They emphasized the private sector's enormous role in altering destructive patterns of human interaction with nature, and addressing climate change, disaster risk reduction, and ecosystem restoration. Nature, they emphasized, must be valued in all decisions.

### **Green Technology: Path Finder for Carbon-Neutral Society**

On Friday, 28 May, Lim Hye-sook, Minister of Science and Information and Communication Technology (ICT),



Lim Hye-sook, Minister of Science and ICT, ROK

ROK, opened the session. Referring to the ROK's aim to be carbon-neutral by 2050 and to create an enabling ecosystem for innovation, she announced two policy actions: the Act on the Promotion of Climate Change Response Technology Development; and the Carbon-Neutral Technology Promotion Strategy.

On the latter, she expressed hope for greater collaboration with developing countries, and announced plans for a Climate Technology Centre and Network (CTCN) office in Incheon, in cooperation with UNEP.

**The Private Sector's CarbonNeutral Strategy and Technology:** In this sub-session, Shin Hak-Cheol, CEO, LG Chem, highlighted his company's actions toward climate neutrality, noting, in particular, the testing of biomass and green hydrogen fuels, and its partnership with the Korea Institute of Technology to study carbon capture and utilization technology. He observed business strategies are moving toward incorporating more balanced stakeholder interests and longer time horizons.

Melker Jernberg, President and CEO, Volvo Construction Equipment, said the company has now committed to "an electric future" in construction machinery, and had opened its first hydrogen fuel laboratory the previous week. He anticipated the use of fossil-free steel in the building industry. He expressed pride that Volvo is collaborating with the ROK in real-life testing of construction solutions in the Sejong Smart City project, emphasizing that "partnership is the new leadership."

Tim Brooks, The LEGO Group, stated the company's "planet promise" focuses on SDG 4 (quality education) and SDG 12 (responsible consumption and production). He explained that the company's environmental agenda is driven by circular economy and climate impact considerations and, as such, it aims to keep LEGO products in play by collecting, cleaning, and donating used bricks to charity. He described the use of bio-based and recycled materials for making LEGO bricks, and highlighted company targets to: remove single-use plastic from all products by 2025; use sustainable materials by 2030; and be climate-neutral in its operations by 2022.

Tyler Rasch, WWF Brand Ambassador, then moderated the discussion of business action for climate neutrality with company leaders.



Tim Brooks, The LEGO Group





Shin Hak-Cheol, CEO, LG Chem

Cheol said that companies are adopting zero-carbon initiatives in response to the threat the climate crisis poses to their business operations and are seeking to meet consumer demand for eco-friendly products.

Jernberg noted consumer demand for sustainability has driven Volvo's ambition to be carbon-neutral by 2050. He highlighted the need for partnerships to develop innovations. He urged organizations to consider climate action as a responsibility to benefit consumers and the planet, rather than an obligation.

Brooks stated his company was driven by the need to have a positive impact on future generations, and that children who play with LEGO will appreciate this in the future. He highlighted the need to involve all employees in action for sustainability.

**Potential of Green Technology:** Måns Nilsson, Executive Director, Stockholm Environment Institute, discussed the work of the Leadership Group for Industry Transition (LeadIT), a partnership of countries and companies for experience sharing on the challenges and opportunities of green value chains and products. He also drew attention to the Sweden+Korea Green Transition Alliance aimed at reducing the environmental and carbon footprint of Swedish companies in ROK.

Reimund Neugebauer, President, Fraunhofer-Gesellschaft, noted that the EU Green Deal commits to reducing Europe's emissions to 55% of 1990 levels by 2030 and to achieving climate neutrality by 2050. This, he said, will require deploying new technology on a massive scale. He highlighted examples of energy-efficiency technologies, including:

- bio-based materials for use in "green" computers;
- hydrogen fuel production that is cost-efficient, scalable, and clean;
- high energy density "Powerpaste" that can store a large amount of energy in fuel cells for EVs and drones;
- modular computer architecture that will enable more energy-efficient running, even while doing complex calculations; and
- strategies to resolve systemic issues in the energy transition.

He welcomed the creation of a German-Korean hydrogen network in 2021 for expert collaboration between the two countries.

Mads Nipper, CEO, Ørsted, noted his company has been able to meet its ambitious targets to greatly increase energy generation from renewable sources, while bringing down energy prices through its partnerships and relationships of trust with

governments. He reported plans to produce 100% renewable energy by 2025, and the company's partnership projects with ROK on wind energy to power 1.3 million Korean households.

In a Q&A, panelists noted that renewable energy and EV technologies are reaching maturity, while green hydrogen production, hydrogen storage, and biomass for energy, fuel, and fiber are still at an early stage. They raised issues, such as timing and risk in upscaling new technologies, and the question of who bears that risk.

Matthias Bausenwein, President, Ørsted Asia Pacific, noted the challenge of talent acquisition in developing markets, saying that technical operators prefer to work in well-established industries, such as semiconductor manufacturing. He encouraged sharing of industry success stories to prompt policymakers to build the infrastructure needed for the deployment of new, green technologies, such as power transmission networks for alternative fuels. Neugenbauer highlighted the value of platforms for industry cooperation with universities and research institutes.

Nilsson noted the need for policymaking to address the so-called "valley of death" between the emergence of new technologies and their large-scale deployment. He observed that security around the European carbon price, for example, would reduce investment risk, as well as enable the building of skills and competence necessary to manage and operate new technologies. He stressed the need to send consistent signals to investors as to what is a green investment and what is not. In closing, he raised the question of how governments can maintain global trade networks and create positive incentives for change, without resorting to protectionism.

**Partnership to Facilitate Global Carbon Neutrality:** The sub-session opened with a short, animated video on the topic. Inger Andersen, Executive Director, UNEP, called for using the COVID-19 recovery stimulus to kickstart a green recovery, through adopting existing technologies for solar and wind, green buildings, energy-efficient appliances, and efficient cooling systems. She added that, in order for technologies to be useful, they must be relevant, customizable, affordable, and available. She further noted UNEP partnerships to support technical assistance to developing countries through the CTCN, which UNEP hosts.

Byung-ki Cheong, President, Green Technology Center, ROK, said ICT in his country has been the driver of rapid



Inger Andersen, Executive Director, UNEP

economic growth, with the potential for rapid transformation towards carbon neutrality. ICT, he noted, can be used in ensuring technology efficiency, providing efficient communication channels, and ensuring that participation is inclusive.

In a panel discussion, Mark Radka, UNEP, identified the lack of enabling policies by governments as a real barrier to technology adoption. He referred to the private sector as the engine for development, adding that good PPPs are based on altruistic cooperation models.

Cheong highlighted a PPP to support green technologies in Viet Nam, emphasizing that inclusivity in PPPs enhances project sustainability and scalability.

### Forests for Global Net-Zero and Peace

On Friday, Byung-Am Choi, Minister, Korea Forest Service (KFS), opened this KFS-hosted session with a presentation of the P4G agroforestry cooperation project between KFS and Ethiopia. He explained that the project is restoring the forest ecosystem and supporting traditional shade-grown coffee beans. He anticipated replicating the business model in other P4G member countries, such as Kenya, Viet Nam, Colombia, and Indonesia.

Choi highlighted further opportunities for cooperation and action, including the UN Decade of Ecosystem Restoration 2021-2030, and the WEF's One Trillion Trees Initiative. He announced ROK's current forest strategy to plant 100 million trees a year for the next three decades, and highlighted ROK's role in launching the UN Convention to Combat Desertification's (UNCCD) [Peace Forest Initiative](#) in 2019. He concluded with a quote from Kenyan Nobel Peace Prize environmentalist Wangari Maathai: "When you plant trees, you plant the seeds of peace, and the seeds of hope."

Qu Dongyu, Director-General, Food and Agriculture Organization of the UN (FAO), warned that the world is far from reaching the Paris Agreement's objective of limiting global warming to 2°C, based on the current level of national commitments, and that more than 155 million people are suffering from acute food insecurity. He highlighted that forests act as natural carbon sinks, besides providing food, animal feed, fiber, and income to markets, as well as ecosystem services for clean water, clean air, and biodiversity. He called on all stakeholders to undertake net-zero strategies through forests, including through knowledge sharing and data exchange, and



Byung-Am Choi, Minister, KFS



Ibrahim Thiaw, Executive Secretary, UNCCD

providing financial instruments to support these. He announced that FAO is working with ROK on the 15th World Forest Congress, which has the theme of "Building a Greenhouse-Resilient Future Through Forests."

Ibrahim Thiaw, Executive Secretary, UNCCD, discussed the Peace Forest Initiative launched at UNCCD COP 14 in New Delhi, India, in 2019. The initiative, he explained, can achieve the UNCCD's land degradation neutrality goal, contribute to collective security, and promote stability in post-conflict zones. He welcomed the ROK's leadership in this initiative, reminding all that more than one-fifth of the Earth's land is degraded, resulting in loss of economic opportunities and pressures as distressed people migrate. He called for investing in land as a tool for peacebuilding, noting that "practical steps can prevent grievances." He highlighted the peace parks established in the Cordillera del Cóndor by Ecuador and Peru as a mechanism for bilateral cooperation and a useful approach for countries emerging from conflict.

US Senator Chris Coons, Delaware, reported on championing the Climate Solutions Caucus, a bipartisan caucus of US legislators aimed at addressing the risks from climate change. He highlighted the importance of involving landowners to ensure the success of the One Trillion Trees Initiative.

**Forestry Policies and Businesses Implemented by Government and Institutions:** Alex Rudee, WRI, said tree restoration is one of the largest opportunities for carbon removal. Urban reforestation, he added, has had environmental benefits for city dwellers. The goal for the US, he said, is to grow 60 billion trees, which will remove 540 million tons CO<sub>2</sub> per year by 2040, an amount equal to US annual emissions from the agriculture sector. In order to plant billions of trees, he highlighted the need to address financial barriers, establish science-based safeguards to plant the right trees in the right places, and lay the groundwork for success by establishing nurseries and providing technical assistance.

Hyung-soo Kim, Founder and CEO, Tree Planet, presented engagement in tree planting around the world through crowdfunding, crowd-farming, and smartphone tree planting games, among others. He explained the Tree Planting Game, an app that encourages people to plant virtual trees, which translates to growing an actual tree, funded by advertising in the app.



Discussing the crowd-farming business model, he mentioned public involvement to invest in planting shade trees for coffee farms in Nepal. He further reported a trend of tree naming using Korean pop stars by app users, which led to the idea of crowdfunding for “Star Forests,” through which fan clubs plant trees for celebrities.

Hyoeyun Jenny Kim, Deputy Director-General, GGGI, moderated the discussion, opening with some statistics, including that:

- in 2020, the world lost forests covering the equivalent of one soccer field every six seconds, through mining, logging, and other extractive activities;
- helping forests recover can provide up to 30% of the solution to climate change; and
- if tropical deforestation was a country, it would rank third in the world for carbon emissions, right after China and the US.

Panelists then elaborated on their organizations’ efforts to make forests a driving force for climate action, community restoration, and peacebuilding, and proposed next steps.

Frøde Solberg, Norwegian Ambassador to ROK, noted that some conflicts over forests relate to disputes over land tenure, and that programs for land restoration and sustainability can be powerful tools.

Ricardo Calderon, Executive Director, Asian Forest Cooperation Organization (AFoCO), highlighted AFoCO’s work with its member countries. He mentioned joint cooperation with Landscape Partnership Asia to restore 10 million hectares of drylands by 2032 in Asia, and with World Agroforestry (ICRAF), through science and technology partnerships, graduate programs, biodiversity conservation, and climate mitigation.

Milagros De Camps, Ministry of Environment and Natural Resources, Dominican Republic, highlighted the January 2021 agreement between the Dominican Republic and Haiti on forestry cooperation, noting that sharing a common island makes the two countries natural allies in accurate data collection, climate-smart agriculture, sustainable tourism, tackling deforestation, and restoring areas critical to biodiversity. She emphasized the value of triangular and South-South cooperation in delivering the 2030 Agenda for Sustainable Development.



**Milagros De Camps**, Ministry of Environment and Natural Resources, Dominican Republic

German Velasquez, GCF, described action to support countries to implement their NDCs, which, he said, has reduced carbon emissions by 100 million tons to date.

Inbo Chung, CEO, SK Forest, described his company’s collaboration with KFS in carbon trading projects for afforestation and reforestation. Tree-planting initiatives, he said, were spearheaded by the company’s first chairman, with the planting of a tree on Mount Gwangdeok to demonstrate the company’s plans to carry out reforestation with communities. He discussed recent collaboration projects, including the Mangrove Forest Restoration Project, which has so far planted more than 160,000 trees in 40 hectares.

During the ensuing discussion, participants and panelists noted that PPPs are important for harnessing each partner’s respective strengths. Panelists highlighted opportunities to resolve the climate change, biodiversity loss, and pandemic crises through forests.

The session concluded with participants looking forward to the ROK hosting the XV World Forestry Congress in Seoul in May 2022. Calderon noted that the Asia Forestry Congress will take place prior to this event, and Velasquez proposed the Congress include discussion of how market-based instruments can contribute to forestry. As Secretary-General of the World Forestry Congress, Park Eunsik, Director-General, KFS, invited the continuous support and interest of the global forestry sector in addressing climate change.

### ***The Role of Finance in Fostering Green Recovery in the Post-COVID-19 Era***

On Saturday, 29 May, the ROK’s Financial Services Commission hosted this session, which discussed how to spark the massive investment in green technologies, services, and infrastructure that will be needed for the world to shift toward a low-carbon economy.

Patricia Espinosa, Executive Secretary, UNFCCC, highlighted that “much work remains” if the global community is to succeed at COP 26 in Glasgow, UK.

Børge Brende, President, WEF, noted the world has just experienced the warmest year on record, and that global GDP is forecast to shrink by 18% due to climate impacts. He drew



**Patricia Espinosa**, Executive Secretary, UNFCCC

attention to the launch of the Glasgow Financial Alliance for Net Zero Emissions in 2020 to accelerate the transition toward climate neutrality.

Makhtar Diop, IFC, gave examples of effective PPPs, including the transformation of large trash dumps in Serbia into green spaces, with the support of donors and partners.

Panel discussions addressed climate-related financial disclosures and the case for global cooperation on climate finance.

Panelists from international development banks and multilateral organizations included Yannick Glemarec, Executive Director, GCF. He stressed that green investment is the key to keeping open the small window of opportunity to keep global temperature rise below 2°C. He explained that price signals, such as climate-risk disclosure, can shift finance towards climate-friendly investment, and said a “green taxonomy” is needed. He noted that sectoral policy measures, such as minimum energy performance stands, will help create demand for low-carbon projects and de-risk the supply of such projects.

### ***Future Generations: Voice of the Earth, Voice for the Earth***

On Saturday, the ROK’s Ministry of Foreign Affairs and National Council on Climate and Air Quality hosted this session as a platform for youth voices on climate change. The session showcased many examples of youth action on practical projects, and sounded the call for action at all levels

**Global Youth Climate Challenges (GYCC) 2021 Town Hall Meeting:** Youth participants from the GYCC 2021 conference, which took place during the week, presented their projects and action plans toward climate neutrality, with a strong focus on avoiding waste. They also held open discussions about further climate action and environmental education.

The session opened with an interpretive dance performance conveying both grief and a message of hope for the planet. Euna Yoo, Global Project Manager, GYCC, moderated the event.

Ban Ki-moon, President and Chair, GGGI, referred to the grim outlook of the World Meteorological Organization’s [State of the Global Climate 2020](#). He noted the Leader’s Summit on Climate, hosted by US President Joe Biden in April 2021, where leaders from 40 countries, representing some of the highest GHG emitters, announced ambitious climate targets. He urged young people to demand more from world leaders and business CEOs, recalling youth activist Greta Thunberg’s warning to world leaders at the UN Climate Action Summit in 2019 that the younger generation “will never forgive you” if they choose to fail in tackling the climate crisis.

Frederik André Henrik Christian, Crown Prince of Denmark, highlighted his country’s ambitious target to cut 70% of its GHG emissions by 2030. He highlighted the work of the Danish Youth Climate Council as a platform for youth voices in climate issues, stating that Denmark promotes development not just for the people, but also with and by the people, as they are part of the solution.



**Erna Solberg**, Prime Minister, Norway

Erna Solberg, Prime Minister, Norway, acknowledged that today’s youth are facing unprecedented times due to the pandemic. She reported that solid waste management is an important issue and highlighted the need to ensure circularity of plastics.

Youth presenters then showcased several GYCC projects for sustainability.

- The TACO (Talk About Culinary Options) project helps young people in high-income countries compare food choices in terms of their planetary impacts. The project educates users of its information to be aware that the meat and dairy industries account for 30% of global emissions and encourages them to make better choices for the Earth.
- The Hero4Zero online platform promotes zero waste and a circular economy by connecting companies with goods to donate with charities and people who can use them. It will run a pilot project on oral care in Uganda from July to December 2021, with the use of eco-friendly toothbrushes and DIY toothpaste.
- The Poo-E project targets dogwalkers through the distribution of biodegradable bags for pet feces, a source of methane. The project operates a reward system that will generate donations for the use of the bags and collects back the dog waste to use in generating biogas.

Participants presented their projects to tackle waste in six areas: urban households; plastics; agriculture; food; rivers and seas; and land and forests. They emphasized that “small actions have impact” and warned that the COVID-19 pandemic has caused an unprecedented surge in single-use plastics. They called for the establishment of youth representative committees to enable their voices to be heard by governments.

On food waste, presenters highlighted that just 0.04% of food waste goes to food banks. They outlined a “bottom-up” project that will educate and engage schoolchildren and their teachers in collecting unwanted food items in their communities to send to food banks.

On plastics in the marine environment, participants proposed addressing the problem of plastic-contaminated seafood, a threat to three billion people on Earth, through creating facilities for the collection and recycling of plastic waste in cooperation with riverside communities.



On land and forest waste, presenters noted that around 11 million hectares of trees, an area the size of Iceland, have already been cut down to date in 2021 alone. The project guides users to an online calculator that estimates their personal biomass footprint, encourages them to donate for carbon offsets, and shares their actions on social media.

**Voices of Teens:** During this session, participants heard messages from teenagers who took part in a 60-day Youth Voice Fiesta, which brought together 112 teens from nine countries. They included messages from:

- Evergreen Club, Kenya, on tree planting and water catchment protection activities to preserve natural habitats for wildlife and indigenous species;
- Green Vietnam Group, on awareness-building activities to change people's perspectives on waste;
- Yuna Chinen, a girl in Okinawa, Japan, on combating marine pollution by retrieving, *inter alia*, cans, plastics, and magazines along the beach; and
- teenagers from Jeju Island, ROK, on carrying out a swallow exploration activity to enhance their protection and establishing vegetable gardens in their schools.

Participants also heard about an ecologically-friendly toothbrush made from acorns and peanut shells, which can be planted and grown after use.

Actress and singer Oh Seung-ah, ROK, discussed the issue of unsustainable packaging products in food delivery, and presented a song by teens on sustainability.

Gyuri Cho, Co-President, Green Environment Youth Korea, then moderated the panel session.

Jayathma Wickramanayake, UN Secretary-General's Envoy on Youth, Sri Lanka, emphasized the global problem posed by solid waste as a source of methane, and a threat to public health, particularly for young people. She urged governments to uphold the UN Convention on the Rights of the Child, saying children have a right to grow in a clean and safe environment.

Mette Lykke, CEO, Too Good To Go, Denmark, said one-third of food produced is wasted, and that food waste is responsible for 8-10% of emissions. She presented the Too Good To Go app, which involves food retailers providing surplus food to consumers at discounted prices during their closing time. She reported that



Mette Lykke, CEO, Too Good To Go, Denmark

the program has saved about 75 million meals, and has over 40 million users and 40,000 stores enrolled in 15 countries. She said the program aims to save 1 billion meals by 2024.

Jan Guillermo, General Coordinator, UN Climate Change Conference of Youth, the Philippines, and Christophe Diercxsens, Too Good to Go, engaged in an open dialogue. Guillermo affirmed the value of robust policies. Diercxsens encouraged all to take personal steps for reducing food waste, which he viewed as the most effective way for individuals to reduce the impacts of climate change. He noted that young people in Europe have been successful in influencing sustainable development policy.

Yoo concluded the session, affirming the need for young people to build grassroots support and reach out to policymakers and entrepreneurs.

### Closing Segment

Green Future Week closed at the end of the Future Generations session on Saturday. In a video message, Carlos Eduardo Correa, Minister of Environment and Sustainable Development, Colombia, welcomed all participants to the next GYCC meeting, which will take place in Colombia in 2023 on the theme of deforestation.

Yun Sun-Jin, Chair, Commission on Sustainable Development, ROK, and incoming Chair of the 2050 Carbon Neutrality Committee, warmly thanked everyone for their support, calling the Future Generations session the most important of the Green Future Week's ten sessions. She noted that GYCC 2021 will be remembered as the first conference to be hosted by the 2050 Carbon Neutrality Committee, and praised the hard work,



Jayathma Wickramanayake, UN Secretary-General's Envoy on Youth



commitment, and dedication of all participants. She called on each and every country to do their part in meeting the climate neutrality target by 2050 and pledged that the Committee and ROK would lead the journey.

The session closed with an artistic dance and spoken word performance, during which youth participants made personal pledges toward their own dreams of tomorrow for planet Earth.

## Upcoming Meetings

### 52nd Session of the UNFCCC Subsidiary Bodies:

Postponed since June 2020 due to the COVID-19 pandemic, the 52nd session of the UNFCCC Subsidiary Bodies will prepare for COP 26. **dates:** 31 May – 17 June 2021 (TBC) **location:** online **www:** <https://unfccc.int/calendar> <https://unfccc.int/event/1st-sessional-period-2021>

### 54th Session of the IPCC (IPCC-54) and WG I AR6

**Approval Plenary:** This session is expected to finalize the contribution of Working Group I to the Sixth Assessment Report. Arrangements for the meeting are still pending. **dates:** 26 July - 9 August 2021 (TBC) **location:** online (TBC) **www:** <https://www.ipcc.ch/calendar/>

### High-Level Political Forum on Sustainable Development (HLPF) 2021:

The ninth session of the HLPF will take place over eight days in July 2021 under the theme, “Sustainable and resilient recovery from the COVID-19 pandemic, that promotes the economic, social, and environmental dimensions of sustainable development: Building an inclusive and effective path for the achievement of the 2030 Agenda in the context of the decade of action and delivery for sustainable development.” **dates:** 6-15 July 2021 **location:** online **www:** <https://sustainabledevelopment.un.org/hlpf/2021>

**2021 UN Biodiversity Conference (CBD COP 15):** CBD COP 15, COP 10 of the Cartagena Protocol on Biosafety, and COP 4 of the Nagoya Protocol on Access and Benefit-sharing are scheduled to take place to review the achievement and delivery of the CBD’s Strategic Plan for Biodiversity 2011-2020. It is also expected to take a final decision on the post-2020 global biodiversity framework, as well as decisions on related topics, including capacity building and resource mobilization. **dates:** 11-24 October 2021 **location:** Kunming, China **www:** <https://www.cbd.int/meetings/>

**Glasgow Climate Change Conference (UNFCCC COP 26):** UNFCCC COP 26, the 16th meeting of the COP serving as the Meeting of the Parties to the Kyoto Protocol (CMP 16), and the third meeting of the COP serving as the Meeting of the Parties to the Paris Agreement (CMA 3) are expected to convene one year after the originally scheduled dates. **dates:** 1-12 November 2021 **location:** Glasgow, UK **www:** <https://unfccc.int>

**Fifth UN Environment Assembly (UNEA-5) Resumed Session:** Convening under the theme “Strengthening Actions for Nature to Achieve the SDGs,” UNEA-5 will provide a platform for discussing and implementing nature-based solutions that contribute to the achievement of the 2030 Agenda for Sustainable Development. Building on the February 2021 virtual session, the meeting will discuss ways to ensure policies for economic

recovery following COVID-19 lead to a resilient and inclusive post-pandemic world. A special UNEA session to commemorate the 50th anniversary of the establishment of UNEP will convene from 5-6 March 2022. **dates:** 28 February – 4 March 2022 **location:** Nairobi, Kenya **www:** <https://www.unep.org/environmentassembly/>

### Seventh International Marine Debris Conference:

This conference will take place at the Busan Exhibition and Convention Center, bringing together close to 50 countries and regions to discuss a range of topics, including prevention of microplastics, collaboration in the private sector, and effective implementation of laws, regulations, and policies. This is the first time the conference, held under the auspices of NOAA, will take place in a country other than the US. **dates:** September 2022 **location:** Busan, ROK

**GYCC 2023:** This conference is tentatively scheduled to take place in Colombia, with the Ministry of Environment and Sustainable Development as host. **dates:** 2023 (TBC) **location:** Colombia (TBC)

## Glossary

CBD	Convention on Biological Diversity
COP	Conference of the Parties
CSO	civil society organization
EV	electric vehicle
GCF	Green Climate Fund
GGGI	Global Green Growth Institute
GHG	greenhouse gas
GYCC	Global Youth Climate Challenges
IFC	International Finance Corporation
IUCN	International Union for Conservation of Nature
KIOST	Korea Institute of Ocean Science and Technology
NDC	Nationally Determined Contribution
NOAA	National Oceanic and Atmospheric Administration
OECD	Organisation for Economic Co-operation and Development
PEMSEA	Partnerships in Environmental Management for the Seas of East Asia
PPP	public-private partnership
ROK	Republic of Korea
SDGs	Sustainable Development Goals
UNCCD	UN Convention to Combat Desertification
UNEA	UN Environment Assembly
UNEP	UN Environment Programme
WEF	World Economic Forum
WRI	World Resources Institute