

**Integrative Strategic Research Programme
for the 8th Phase (ISRP8)**

**FY2021 (Year 1)
Business Report**

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Institute for Global Environmental Strategies

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1. Impacts and Outputs

The Institute for Global Environmental Strategies (IGES) continues to act as an agent of change to generate significant impacts towards sustainable and resilient society, including those for post COVID-19 (Coronavirus disease 2019) response-recover-redesign in broad areas of IGES expertise (climate change & energy, sustainable production & consumption, biodiversity & forests, and climate adaptation & water) through co-design, co-implementation, co-production and co-delivery with key stakeholders.

In the Integrative Strategic Research Programme for the 8th Phase (ISRP8), IGES will further promote an integrative and inclusive approach across sectors and disciplines at the institute by materialising the concept of the regional Circulating and Ecological Sphere (CES) with the launch of the Integrated Sustainability Centre (ISC). Furthermore, Common Focus Areas have been introduced in which each research unit should work together to form a higher level of impact.

The key performance indicators for impacts and outputs set out in the ISRP8 are 30 impact cases each year, 150 strategic publications each year and 100 academic publications each year. Section 1.1 below provides an overview and the progress of the intended impacts and initiatives in the Common Focus Areas, followed by Section 1.2 on the highlights of impact generation (impact cases, deliverables, strategic networking and communication) in FY2021.

1.1. Common Focus Areas

Common Focus Areas are defined as priority areas where IGES will make efforts collectively to enhance impact generation beyond each research unit. Therefore, the Common Focus Areas are expected to provide an internal framework to drive and motivate research units to co-work and collaborate to generate greater impacts in those areas in cooperation with the Strategic Management Office (SMO).

The Common Focus Areas are identified by reviewing intended impacts during ISRP8 by each research unit and selecting key issues to be addressed taking account of global, regional and domestic urgencies and priorities related to sustainable development, as well as considering IGES' strengths (Table 1).

The Common Focus Areas are composed of Focus Areas and Sub-focal Areas. The Focus Areas are expected to be those target areas seeking greater impacts, i.e. (1) accelerating implementation of the SDGs ("Put SDGs on the ground"), (2) accelerating implementation of the Paris Agreement ("Net zero and Resilient society") and (3) developing and implementing the Global Biodiversity Framework ("No biodiversity loss")¹.

Sub-focal Areas are key components that IGES has been engaged in, with competent expertise and networks close to the target areas. In each Sub-focal Area, research units are expected to work collaboratively and also try to find synergies among the Sub-focal Areas aiming for bigger impacts. Major planned activities were selected by each relevant unit.

¹ The FY2021 Business Plan states that the Common Focus Areas will be reviewed and revised as necessary. In the FY2022 Business Plan, reflecting the discussions at the Board of Directors and Board of Trustees meetings, the Common Focal Areas are set as: (1) Accelerating implementation of the SDGs "Put SDGs on the ground"; (2) Accelerating implementation of the Paris Agreement "Make society net zero and resilient"; (3) Accelerating implementation of the Post-2020 Global Biodiversity Framework "Put biodiversity on a path to recovery by 2030"; and (4) Shaping circular economy and sustainable lifestyles "Make it circular".

Table 1: Common Focus Areas and Sub-focal areas

Common Focus Areas	Sub-focal areas
(1) “Put SDGs on the ground” Accelerating implementation of SDGs	a. SDGs governance and monitoring and evaluation
	b. Localising SDGs (i.e. Regional-CES, VLR, SEPLS (socio-ecological production landscapes and seascapes))
	c. Sustainable lifestyles
	d. Circular economy including marine plastics
	e. Improved environmental quality (i.e. pollution control including co-benefit, environmental impact assessment (EIA) enforcement)
	f. COVID-19 and Triple-R
(2) “Net zero and resilient society” Accelerating implementation of Paris Agreement (PA)	a. Engagement in PA, G7/G20 processes
	b. Net zero at national/local level
	c. Climate adaptation implementation
(3) “No biodiversity loss” Developing and implementing Global Framework of Biodiversity	a. Post-2020 global biodiversity framework
	b. Sustainable forest management

The intended impact generation for each sub-focus area in FY2021 (excerpts from the FY2021 Business Plan: *italicised*) and the progress of the initiatives are as follows.

(1) “Put SDGs on the ground” Accelerating implementation of SDGs

a. SDGs governance monitoring and evaluation

While the SDGs have been in implementation for more than five years since the adoption of the 2030 Agenda in 2015, progress is not satisfactory for some of the goals. In the Asia-Pacific region, for example, Life below water (Goal 14), Climate action (Goal 13) and Responsible consumption and production (Goal 12) have seen less progress (Asia and the Pacific SDG Progress Report 2021, UNESCAP). IGES aims to generate impacts in accelerating implementation of these goals in the Asia-Pacific region through research and programming which will combine science-based tools and methods, socially-responsive governance models and strategies, and cutting-edge policy frameworks and solutions. IGES will also accelerate the progress of SDGs implementation in Japan by engaging with the Japanese government to strengthen its governance. IGES will also forge closer collaboration with the Global Compact Network Japan (GCNJ), a pro-SDGs business group in Japan. The collaboration with GCNJ is now further extended to Keidanren (Japan Business Federation), and the World Business Council for Sustainable Development internationally.

In FY2021, IGES continued to promote the integration of the SDGs into core planning processes among governments and businesses in Japan and other parts of Asia. In collaboration with the Global Compact Network Japan (GCNJ), IGES launched a new report that demonstrated progress on how Japanese

businesses were working on the SDGs. In addition, IGES was successfully awarded a multi-year project that will focus on establishing an effective methodology for the follow-up and review process and the alignment between those processes at the national and local levels in Japan. Outside Japan, IGES has also been working with the United Nations Environment Programme (UNEP) to evaluate 50 Voluntary National Reviews (VNRs) that countries in the Asia-Pacific produced between 2016 and 2021. Among others, the preliminary findings of the project include recommendations on how VNRs can strengthen the implementation of the environmental dimensions of the SDGs. Lastly, IGES developed a set of key messages for the Asia Pacific Forum on Sustainable Development (APFSD) that outlined how policymakers in Asia and the Pacific can live within planetary boundaries.

b. Localising SDGs

At the SDGs Summit 2019, the leaders' dialogue addressed "Localising SDGs" to transform the "Global goals" into local aspirations. Actions to localise the SDGs include integrating the goals into local development plans and budgets, and establishing a monitoring and evaluation system and coordination mechanism. IGES will generate impact in terms of localising SDGs by introducing innovative approaches and methodologies including the "Regional Circulating and Ecological Sphere (CES)". This is an integrated policy approach that incorporates low-carbon society, resource circulation, and living in harmony with nature. The "Voluntary Local Review (VLR) entails local government's voluntarily review and follow-up implementation of the SDGs with the process for sharing experiences as well as opening avenues for new partnerships. Finally, 'Satoyama' and 'Satoumi' (Socio-Ecological Production Landscapes and Seascapes or SEPLS) and land management practices will allow sustainable use of natural resources.

In FY2021, a regional platform for the Circulating and Ecological Sphere Approach in South-Southeast Asia, namely CES-Asia Consortium, was established on 14th October 2021, with the signing of a consortium agreement by IGES, START International and several leading academic and research institutes in South and Southeast Asia, including Visvesvaraya National Institute of Technology (India), Faculty of Architecture and Planning, Thammasat University (Thailand), University of Dhaka (Bangladesh), University of Danang - University of Technology and Education (Viet Nam), , Royal Thimphu College (Bhutan), University of Indonesia, Ateneo de Manila University (Philippines) and Institute of Forestry of Tribhuvan University (Nepal). The CES-Asia Consortium aims to build resilience in city regions across South and Southeast Asia. The CES-Asia Consortium provides a regional platform to co-develop the CES framework for the localisation of climate and SDGs, and conducts collaborative research in the city regions and to developed joint outputs on the CES concept (Journal paper CES Book, city fact sheets) etc. The CES approach has been identified as an emerging integrated adaptive form of governances in the Asia Chapter of this an assessment report (https://report.ipcc.ch/ar6wg2/pdf/IPCC_AR6_WGII_FinalDraft_FullReport.pdf). CES initiatives has have been gained recognition from stakeholders and received media coverage (<https://timesofindia.indiatimes.com/city/nagpur/vnit-to-lead-international-consortium-for-advancing-r-ces-concept-in-south-asia/articleshow/87244629.cms>).

c. Sustainable lifestyles

Examining possible future lifestyles for long-term sustainable living within the limits of one planet is a unique approach to integrate the SDGs into our own lifestyles. IGES aims to generate impacts in establishing model cases of sustainable consumption and production (SCP or SDG 12), through conceptualisation and operationalisation of long-term sustainable living. In this regard, IGES will make good use of its position as the coordination desk of the Sustainable Lifestyles and Education Programme of the United Nations' 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns.

In FY2021, IGES led both discourse and activities on sustainable lifestyles in the global arena through the publication of “Co-creating Sustainable Ways of Living: 24 Stories of On-the-Ground Innovations”, an integrated report of the Sustainable Lifestyles and Education Programme of the UN 10-Year Framework for Programmes on Sustainable Consumption and Production Patterns.

Moreover, through the “Envisioning Future Sustainable Lifestyles” initiative, IGES spearheaded discussions with citizens and other stakeholders from six cities in Japan and abroad to examine potential initiatives to reduce citizens’ carbon footprint, which will support efforts to meet the 1.5°C target for climate change. Through this initiative, IGES paved the way for policy implementation at the national and local levels.

d. Circular economy including marine plastic

For practical implementation of SCP in a more integrated manner, the circular economy initiative could be an entry point. Critical in this regard is strategic analysis of policy implications of transition to circular economy in developing Asia. Current policy discussion emphasises plastic pollution and transition to a circular economy as key priorities for the sustainability agenda in the Asia-Pacific region. As such, the life cycle approach will continue to be important. It is vital for circular economy policy to be designed to stimulate technological innovations, new business models, sustainable infrastructure and associated lifestyle changes. IGES aims to generate impacts in policy formulation and implementation by strengthening its position as a knowledge centre on circular economy and resource efficiency in the Asia-Pacific region. IGES will also continue to engage in important international policy processes such as G20 resource efficiency dialogue, G7 resource efficiency alliance, and other related initiatives in the region.

In FY2021, IGES contributed to agenda-setting in global circular economy discussions, in particular through the development of the G7’s Circular Economy / Resource Efficiency (G7CERE) principles, participation in the World Economic Forum’s Platform for Accelerating Circular Economy (PACE), and the publication of a T20 policy brief on the circular economy. Moreover, through participating in the OECD’s Environmental Policy Review for the United Kingdom, IGES laid the groundwork for the implementation of more effective circular economy policies at the national level.

In Japan, IGES contributed to the formulation of circular economy measures, indicators and industrial standards by participating in various governmental committees, including those of national agencies (MOEJ, METI), NEDO, Aichi Prefecture, and the Tokyo Metropolitan Government. IGES also continued to serve as the secretariat for the Japan Partnership for Circular Economy (J4CE) and organised six public-private dialogues to increase motivation to implement circular business models in the private sector. J4CE also showcased a number of best practices on circular business practices.

With respect to marine plastics, IGES has continued its support for policies and initiatives undertaken by ASEAN and ASEAN Member States in particular. Notably, IGES’ work has contributed to kickstarting formal coordination processes toward the development of National Action Plans (due to be developed and approved in Spring 2022) in Myanmar and Cambodia.

e. Improved environmental quality

According to the 6th Global Environment Outlook (GEO6) published 2019 by UNEP, the state of the environment in Asia-Pacific is characterised by widespread environmental degradation, loss of ecosystem services and generation of excessive waste due to increasing resource use, with little improvement in the efficiency of such use. Environmental quality can be degraded by inappropriate activities in implementing the SDGs and, vice versa, degraded environmental quality may limit the results of SDG implementation. IGES aims to generate impacts by focusing on solutions to prevent pollution through air pollution control, waste water treatment and waste management, together with enforcement of Environment Impact Assessment in the Asia-Pacific region. Regarding air pollution control, in particular, IGES will take a

more effective, co-benefit approach, which will contribute to a reduction in both greenhouse gases (GHG) emissions and air pollutants, and improve energy efficiency.

In FY2021, IGES made substantial contributions in global discussions that culminated in the adoption of the historic UNEA5.2 resolution, “End Plastic Pollution: Towards an internationally legally binding instrument” in March 2022. IGES’ contributions include submitting inputs to the Ministerial Meeting held in September 2021 to draft a resolution for an internationally legally binding instrument on plastic pollution, and actively engaging as a member of the Global Partnership on Marine Litter (GPML), ESCAP Closing the Loop, UNEP’s Counter Measure Project, and UN-Habitat’s Waste Wise Cities.

Meanwhile, the IGES Centre Collaborating with UNEP on Environmental Technologies (CCET) has continued to provide technical support and capacity-building toward the formulation of national and subnational action plans for managing municipal waste, including plastic waste and marine litter, particularly in Sri Lanka (Negambo and Galle), Indonesia (Surabaya), Malaysia (Kuala Lumpur), Viet Nam (Da Nang), and Thailand (Nakhon Si Thammarat). Moreover, CCET supported the development of policy measures to mitigate open waste burning in three ASEAN cities (Padang, Indonesia; Bago, Myanmar; and Steung Saen, Cambodia) through the use of its Emission Quantification Tool (EQT), developed with the Climate and Clean Air Coalition (CCAC). CCET also supported capacity-building for primary school teachers in Viet Nam (Hoi An City) and Bhutan (Thimphu) so that educators can integrate sustainable resource management, climate change and SDGs in school curricula.

f. COVID-19 and Triple-R

The COVID-19 pandemic has become a major crisis, impacting not only on peoples’ health but also on economies and societies in all Asia-Pacific nations and across the entire world. Immediate actions are needed as a response to on-going challenges such as proper treatment of healthcare waste. The extent to which climate change and other sustainability concerns are to be incorporated in recovery packages could be another important concern. In the long run, how to redesign supply chains and tourism, and modify our daily workstyles and lifestyles should be the focus so that a similar crisis can be avoided in the future. IGES aims to generate impacts in addressing these challenges by applying the new approach called Triple-R (response, recovery, and redesign), which could lay a basis for global discussions for improved sustainability and resilience. The On-line Platform for Redesign 2020, led by the Ministry of the Environment, supported by the United Nations, and managed by IGES, focuses on the need for redesign in the post COVID-19 era.

In FY2021, IGES published its third position paper on COVID-19 and recorded an accompanying webinar. The position paper focused on the need to translate the concept of planetary health into ambitious and actionable policy recommendations in Asia. In addition, IGES also witnessed how some governments and international organisations have begun to pick up on the Triple R framework and incorporate it into policy decisions and high-level reports.

(2) “Net zero and resilient society” Accelerating implementation of Paris Agreement (PA)

a. Engagement in PA process

While international negotiations are ongoing in Article 6, the transparency framework and the global stocktake under the Paris Agreement, state and non-state actors are taking domestic and global actions to advance the Agreement. IGES aims to generate impacts in the implementation of the Paris Agreement, in particular, the implementation, evaluation and updating of NDCs, which includes research-based capacity-building, the submission of biennial transparency reports under the transparency framework, and contribution to the global stocktake. IGES will also contribute to the international process of climate

adaptation issues to be discussed and agreed under the United Nations Framework Convention on Climate Change (UNFCCC), IPCC and other related bodies.

In FY2021, IGES contributed to the adoption of the rulebook on Article 6 of the Paris Agreement by participating in COP26 as a member of Japanese delegation. After the adoption of the rulebook on Article 6, IGES established a new international initiative for development of Article 6 methodology tools (II-AMT) in cooperation with the Perspectives Climate Group. By utilising the knowledge and expertise gained through the support for international negotiations, IGES continued to conduct a mutual learning programme for enhanced transparency in cooperation with the governments of Asian developing countries, focusing on Article 13 and Article 6 reporting. In addition, IGES started playing a key role in bridging science and international policy discussions, by co-implementing a regional independent global stocktake hub for non-state actors (iGST) in Southeast Asia, leading to further exploration in the new phase. IGES also contributed to UNEP Emissions Gap Report 2021.

b. Net zero at national/local level

According to the Net Zero Tracker, 59 countries accounting for 54% of global GHG emissions have communicated a net zero target as of April 2021. Japan declared its commitment to net zero emissions in October 2020, and in this regard, relevant national strategies, policies and plans, for example, the Green Growth Strategy, the Basic Energy Plan, and the Plan for Global Warming Countermeasures, are under review and will be revised to align with net zero emissions. As of March 2021, more than 280 local governments in Japan declared their intentions to become net zero by 2050 at a municipal level. These municipalities cover more than 100 million people or about 80% of Japan's population. IGES aims to generate impacts by formulation of long-term zero emissions strategies and implementation of measures consistent with the long-term goals for a smooth and just transition in Japan and other Asian countries. IGES will engage with state and non-state actors to facilitate their actions to achieve a net zero society through a science-based approach. IGES will also contribute to the implementation of carbon pricing, the Joint Credit Mechanism (JCM) and other offset mechanisms to achieve net zero emissions.

In FY2021, IGES extended the simulation analysis of a power grid system from eastern Japan to the whole country for the maximum expansion of renewables. Cross-divisional joint research for developing a net zero roadmap for Japan was also initiated. Furthermore, IGES continued cross-divisional joint research to develop a book on net zero in Asia and conducted research on technology co-innovation, to identify and propose alternative ways for strengthening technology collaboration among countries. Furthermore, in collaboration with the National Center for Climate Change Strategy and International Cooperation (NCSC), IGES also developed a Low Carbon Development Indicator System and its Japanese version based on the ecological footprint concept.

At the local level, IGES conducted studies and projects aiming to develop capacity of cities to plan and implement carbon neutral policies/plans. Domestically, IGES conducted studies on the supporting needs of Japanese local governments and proposed a supporting scheme for local governments, especially small and medium local governments. In addition, IGES conducted awareness-raising activities in Kitakyushu and Kagoshima by holding a "Workshop on Decarbonized Lifestyles", with a view to establishing a template of the workshop that can be deployed in other municipalities. IGES, together with the Kanagawa Pref. Government jointly developed the Kanagawa Decarbonisation Vision 2050, outlining future visions of decarbonised lifestyles under the three keywords of "renewable energy," "electrification," and "DX".

Internationally, IGES supported city-to-city collaboration for zero carbon societies between Japanese and Asian countries, such as Tokyo Metropolitan Government (TMG) and Kuala Lumpur City (KL), Hai Phong City and Kitakyushu City, Koror State and Kitakyushu, and Soc Trang and Hiroshima Prefecture. The TMG-KL city-to-city collaboration contributed to KL's decision to retrofit existing public buildings based on data analysis, which is an important step for achieving KL's 2050 carbon neutral target. The Hai

Phong City – Kitakyushu city-to-city collaboration contributed to a zero carbon scenario development using the Asia-Pacific Integrated Model (AIM).

IGES also supported city-to-city cooperation between EU and Japanese cities related to carbon neutrality and city resilience under the EU's International Urban and Regional Cooperation projects. IGES also contributed knowledge and lesson sharing among cities through the Zero Carbon International Forum 2022 organised in March 2022 and hosted by the Ministry of the Environment, Office of Special Presidential Envoy for Climate, United States of America, in collaboration with the UNFCCC Secretariat and ICLEI. IGES also organised two side events on zero carbon cities at COP27.

c. Climate adaptation implementation

The Climate Adaptation Summit held in February 2021 boosted momentum to connect initiatives, solutions and challenges to build back better and accelerate adaptation action. The Summit agenda focused on issues including nature-based solutions, disaster risk management, locally led adaptation, and resilient cities. IGES aims to generate impacts providing solutions, tools and capacity building to facilitate climate adaptation in the Asia-Pacific region. One focus is nature-based solutions which could increase integration between adaptation and nature conservation. In order to deploy this approach to the region more broadly, IGES will make use of its role as secretariat to the AP-PLAT. This Platform was launched at the G20 Energy and Environment Ministerial Meeting in June 2019 and aims to provide an enabling environment for climate-risk informed decision-making and practical adaptation action through collaboration with various partners.

In FY2021, first, as an AP-PLAT initiative, e-learning materials on "nature-based solutions" and compound/cascading disaster risks were created and published on the AP-PLAT website. In addition, in cooperation with APN, a new joint project on "Community-Led Adaptation" was launched under AP-PLAT. A new cooperative relationship was also established with the National Institute for Environmental Studies (NIES), and efforts were initiated to enhance the AP-PLAT website and database. Second, as part of efforts related to international negotiations on adaptation, we continuously followed discussions at major international conferences on adaptation and made various policy recommendations based on the analysis of the discussions. Based on these accomplishments, IGES will directly contribute to international negotiations on adaptation at the UNFCCC and other international fora in support of the Ministry of the Environment (MOEJ).

(3) “No biodiversity loss” Developing and implementing Global Framework of Biodiversity

a. Post-2020 global biodiversity framework

Discussions at the UN Biodiversity Convention (CBD) meetings in 2021 aim to come to an agreement on the development of the post-2020 global biodiversity framework. Some issues addressed by the framework include biodiversity targets aligned with the SDGs, approaches to tackle the root causes of biodiversity loss, commitments on finance, capacity building and technology transfer, and social actions on biodiversity. IGES aims to generate impacts by contributing to international policy processes and their implementation by hosting and collaborating with the Technical Support Unit for the Assessment of Invasive Alien Species (TSU-IAS) of the Intergovernmental Platform for Biodiversity and Ecosystem Services (IPBES), which provides policymakers with objective scientific assessments on the state of biodiversity and ecosystems as well as the tools and methods to protect and sustainably use these vital natural assets.

In FY2021, IGES attended CBD and other meetings to prepare the GBF and contributed to several other global biodiversity processes that support it, particularly IPBES. IGES conducted an external review of several IPBES assessments and other documentation, and IGES publications were cited by

these assessments. Furthermore, four IGES staff were selected as members of the expert groups of authors and review editors for the new IPBES nexus assessment and transformative change assessment – possibly more than from any other institution worldwide. The TSU-IAS gave attention to the relevant targets and indicators in the draft GBF in providing support to the overall coordination of drafting work of the assessment report on invasive alien species. IGES also continue to conduct a variety of continued and new work related to the GBF both in Japan and abroad. In relation to a new technical committee on biodiversity which was set up by the International Organization for Standardization (ISO) in 2020, IGES served as the secretariat for a domestic mirror committee, in collaboration with the Japan Standards Association (JSA). The work involved an analysis of concerned documents, a compilation of inputs from concerned organisations and experts in Japan, and submission to the ISO technical committee, as well as knowledge-sharing among concerned stakeholders and the public.

b. Sustainable forest management

The New York Declaration on Forests (NYDF) is a voluntary and non-binding international declaration to take action to halt global deforestation which was first endorsed at the UN Climate Summit in 2014. The declaration includes ambitious targets to end natural forest loss by 2030. In addition, the declaration calls for restoring 350 million hectares of degraded and deforested lands by 2030. NYDF goals could reduce the global GHG emissions by 4.5–8.8 billion metric tons every year. IGES aims to generate impacts to advance the implementation of NYDF. IGES will focus on further expanding efforts to promote legal trade and sustainability in Asia's timber supply chain in collaboration with ITTO. In this regard, IGES will continue to contribute to the review of Japan's Clean Wood Act through research on legal frameworks and timber production and trade in both timber producing and timber consuming countries.

In FY2021, IGES has continuously conducted projects related to the Clean Wood Act commissioned by the Forestry Agency. We published several research articles on timber legality analysing the information collected in the projects. In recognition of our accumulated knowledge on the timber legality, IGES was invited to make two presentations at the Review Committee on the Distribution and Utilization of Legally Harvested Wood organized by the Forestry Agency to review the Clean Wood Act. Our main recommendations were finally adopted in the Interim Report published by the committee.

1.2. Highlights of impact generation

1.2.1. Impact Cases

In close collaboration with diverse stakeholders, IGES aims to generate “impact” that facilitates the transition towards realising sustainable societies. In its ISRP7, which began in FY2017, we set our target to have 25 successful cases annually. The target was met from FY2017 through 2020, with 25 (FY2017), 36 (FY2018), 35 (FY2019) and 37 (FY2020) cases.

IGES will aim to report 30 impact cases each year as one of the key performance indicators specified in ISRP8. ISRP8 will also aim for greater impact cases (three large/significant impacts and seven medium) and a variety of impact types by employing effective outputs and means (communications, networking, knowledge management) for the impact-making process at IGES.

In FY2021, SMO-KC received 40 impact cases in total. Out of 40 cases, 16 cases were categorised as “Outcome 3” (uptake of IGES proposal and acted upon by target stakeholders) or medium-scaled impact cases, and eight cases were categorised as “Impact 1” (changes in policy, planning and practices) or large-scaled impact cases (see Table 1). For the FY2021 IGES President Award, SMO-KC would like to nominate eight cases (categorised as “Impact 1”) as candidates.

Table 2: ISRP8 Key Performance Indicators for Impacts

Indicator	Baseline (ISRP7)	Annual Target	2021 Results	2022 Results	2023 Results	2024 Results
Total impact cases reported	25	30	40			
(Breakdown) Large-scale cases	-	3	8			
(Breakdown) Mid-scale cases	-	7	16			
(Breakdown) Other cases	-	20	16			
Indicator without Target	Baseline (ISRP7)	Indicative Reference	2021 Results	2022 Results	2023 Results	2024 Results
(Breakdown) International processes	-	n/a	17			
(Breakdown) Policy and institutional changes	-	n/a	32			
(Breakdown) Practical solutions	-	n/a	24			
(Breakdown) Media	-	n/a	9			
(Breakdown) Academic	-	n/a	13			

Below is a list of selected cases with high-level impacts (Impact 1 and Outcome 3) in FY2021.

Table 3: List of High-Impact Cases in FY2021

< Impact 1 / large or significant impact cases >

No.	Case title / Impact	Unit name
I-1	<p>Established the CES-Asia Consortium as the Regional Platform of the Circulating and Ecological Sphere Approach in South-Southeast Asia</p> <ul style="list-style-type: none"> ♦ The Circulating and Ecological Sphere (CES) approach applies to spatial integration of urban/peri-urban/rural interdependencies, addressing complex social, environmental and economic sustainability challenges. ♦ This consortium works as a regional platform whereby universities and research institutes work with cities to co-develop research plans and priorities that incorporate and adapt key elements of the CES framework, shaped by the context of specific local needs and priorities. 	<p>Led by ISC</p> <p>In collaboration with CTY, AW, BRC, BDF, SCP, KRC, CE</p>

	<ul style="list-style-type: none"> IGES researchers contributed to the sixth assessment report of IPCC. CES concept has been highlighted in the Asia Chapter of the assessment report. 	
I-2	<p>Accelerating the implementation of Article 6 of Paris Agreement in Asia and Pacific region</p> <ul style="list-style-type: none"> IGES Supported the negotiation of Article 6 of Paris Agreement at COP26 and contributed to the adoption of rulebook. The adoption of Article 6 rulebook in COP26 accelerated the designing of further rules and procedures on the carbon market under Paris Agreement. In addition, this decision also contributed to the launch of new initiatives and capacity building programme funded by Ministry of the Environment, Japan. 	<p>Led by CE</p> <p>In collaboration with SMO, BRC</p>
I-3	<p>Joint Development of Kanagawa Net Zero Vision with Kanagawa Prefecture</p> <ul style="list-style-type: none"> IGES, together with the Kanagawa Pref. Government jointly developed Kanagawa Decarbonisation Vision 2050, outlining future visions of decarbonised lifestyles under the three keywords of "renewable energy," "electrification," and "DX". This vision document was positioned as a reference/annex material for the revised draft of the “Kanagawa Prefecture’s Global Warming Countermeasure Plan”, towards realising a decarbonised society. Kanagawa Prefecture has secured budget to promote decarbonisation projects including implementing MaaS related projects in Miura area. 	<p>Led by CE</p> <p>In collaboration with CTY</p>
I-4	<p>Improved sustainable waste management and resource efficiency through science-based policies and technical support of CCET</p> <ul style="list-style-type: none"> With the research and technical support of CCET, one country (Sri Lanka) and five cities Padang, Surabaya (Indonesia), Kuala Lumpur (Malaysia), Da Nang (Viet Nam), Nakhon Si Thammarat (Thailand) in Asia have developed and officially adopted national and sub-national action plans CCET also contributed to strengthen national and local capacities to incorporate and enhance measures to reduce emissions from the waste sector (GHGs and SLCPs), plastic pollution and leakages into the marine environment, and environmental education in the national/ local policies and plans. 	CCET/SCP
I-5	<p>Contribution to the revision of Japan’s illegal logging prohibition act (called Clean Wood Act) and its implementation</p> <ul style="list-style-type: none"> IGES had official opportunities to present its recommendations to revise the Clean Wood Act and the implementations directly 	BDF

	<p>at the Review Committee on the Distribution and Utilization of Legally Harvested Wood (合法伐採木材等の流通及び利用に係る検討会).</p> <ul style="list-style-type: none"> ♦ IGES's recommendations were finally adopted in the Interim Report published by the committee. ♦ Following the Interim Report, the government decided to introduce a Due Diligence manual for timber industry to check legality of timber they procure as IGES recommended. In addition, IGES has been commissioned again by the government to develop the official manual. 	
I-6	<p>Empowered by the new member companies, the new Co-chairs and the special advisor joined in FY2021, Japan Climate Leaders' Partnership (JCLP) actively engaged with government and policymakers</p> <ul style="list-style-type: none"> ♦ JCLP member companies are dedicated to policy engagement with the representatives of the Japanese government and policymakers including the Prime Minister. ♦ In June 2022, the Japanese government issued a report on the Grand Design of the New Capitalism, which is Prime Minister Kishida's vision to achieve capitalism that will create a virtuous cycle of economic growth and distribution. In the report, both expansion of renewable energy (e.g. off-shore wind power) and carbon pricing mechanism (e.g. carbon tax and emissions trading system) are included and will be considered further at the "GX (Green Transformation) Implementation Council" towards the end of 2022. ♦ It is assumed that JCLP's policy proposal and dialogues between JCLP's executives and PM Kishida have contributed to the progress of the policy design. 	BIZ
I-7	<p>Transforming the ASEAN towards a Resilient & Net-Zero Community as early as possible after 2050 through development of the ASCCR (ASEAN State of Climate Change Report) & ASEAN Policy Brief</p> <ul style="list-style-type: none"> ♦ The ASCCR initiated and coordinated by the ASEAN Secretariat and IGES, under the purview of the ASEAN Working Group on Climate Change (AWGCC) and the ASEAN Senior Officials on Environment (ASOEN). It was made possible due to support from GOJ through Japan-ASEAN Integration Fund. ♦ ASCCR is the first science-based report to provide a clear picture of the current status of ASEAN countries with respect to both climate change mitigation and adaptation, and a concrete roadmap for 2030 and 2050. ♦ ASCCR was highlighted in the chairperson's statement of the 38th and 39th ASEAN Summit held in October 2021. In addition, PM Kishida mentioned ASCCR at the top of ASEAN-Japan Climate Change Action Agenda 2.0 at the Japan-ASEAN Summit in October 2021. 	<p>SMO</p> <p>CE, AW, BRC</p>

I-8	<p>IGES supported Da Nang City to develop City Action Plans on marine plastics, on 3Rs implementation as well as formulating a Comprehensive Climate Action plan and a Training Curriculum on climate change education by providing a series of policy research findings in a timely manner</p> <ul style="list-style-type: none"> ♦ IGES has worked closely with the City of Yokohama and the Da Nang Department of Natural Resources and Environment (DONRE), in partnership with JICA, to support pilot projects on 3R in Da Nang. ♦ Thanks to the success of this project, Da Nang decided to expand source separation activities to the entire city, with a target to achieve a recycling rate up to 15% by 2025. ♦ In addition, since early 2020, IGES also supported Da Nang's efforts to address the problem of plastic pollution leaking into the ocean. ♦ IGES is committed to continuing its support for realising the goal of “Building Da Nang into an Environmental City” by 2030. ♦ IGES was awarded a Certificate of Merit by the Chairman of the Da Nang People’s Committee in recognition of its outstanding contribution to sustainable urban and socio-economic development in the city through leadership in a number of initiatives and programmes. 	AW, SCP, ISC
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< Outcome 3 / medium impact cases >

O-1	Integrating climate change and air pollution planning to bring co-benefits to Asia	<p>Led by ISC, CE</p> <p>In collaboration with SCP, NRE</p>
O-2	Technical Contribution to IPBES Sustainable Use of Wild Species Assessment	ISC
O-3	IGES Motivates Companies in Japan and the world to Improve Planning and Monitoring on the SDGs	<p>Led by ISC</p> <p>In collaboration with CE, SCP</p>
O-4	Development of science-based comprehensive long-term sustainable development strategies (SSPs for Cities) and formulate multilevel collaborations for realizing the place-based sustainable development	<p>Led by ISC</p> <p>In collaboration with NRE, SCP, FIN</p>

O-5	Supporting local climate mitigation policy processes through scenario analysis and linkages with the SDGs: A case study in West Java Province in Indonesia	Led by ISC In collaboration with CTY, SMO
O-6	IGES research and capacity building support for a successful transition to the ETF	CE
O-7	Increased momentum on Resource Efficiency and Circular Economy at Japan and global community as key Regional Knowledge Institution	SCP
O-8	Putting low-carbon lifestyles into practice through participatory actions in cities and communities	SCP
O-9	Becoming Regional Think Tank for Policy Research on Preventing Plastic Pollution and Promoting Circular Economy in ASEAN+3 and beyond	Led by SCP In collaboration with KUC, ISC, AW, BRC
O-10	Support for global biodiversity processes including IPBES and the CBD	BDF
O-11	Promote socio-ecological production landscapes & seascapes	BDF
O-12	Technical Contribution to IPCC sixth assessment report	AW
O-13	Improved Water Quality Governance in WEPA Partner Countries through WEPA Action Program in Indonesia, Cambodia, and Myanmar	AW
O-14	Promotion of Environmental Law through Improved Environmental Compliance and Enforcement	BRC
O-15	IGES proposals have created a stir in the design of Japan's new Strategic Energy Plan for CN and have broadened the range of options	KRC, CE
O-16	Increased public attention to and policy uptake of an integrated approach to biodiversity and climate change through an IGES Guidebook on the IPBES-IPCC Co-sponsored Workshop Report on Biodiversity and Climate Change	BDF, SMO, IPCC-TSU, TFI-TSU, IPBES-TSU-AIS

1.2.2. Outputs

(1) Written publications

ISRP8 established three main targets for written publications. The first target is 150 strategic publications annually for impact generation, and it includes a range of publication types which can support diverse strategies to influence different target audiences. The second target is 100 academic publications. The third target is that 20 academic publications should have an IGES researcher as the first author. All three targets were met in FY2021, and the target for strategic publications was exceeded by about 50%, while the target for IGES first-authored academic publications was exceeded by 125%. (See Table 4-1. The main publication types covered by each target are indicated in the note to Table 4-1.) The breakdown of IGES first authored academic publications by publication type is indicated in Table 5. It shows that 28% of peer-reviewed articles had an IGES researcher as first author, while other publication types had a much higher rate of IGES first authors, over 70%. The number of peer reviewed articles with Impact Factor over 3 published in CY2021 was 66.

Table 4-1: ISRP8 Key Performance Indicators for Strategic Outputs and Academic Publications and Impacts (with target)

Indicator	ISRP7 Target	ISRP8 Target	2021 Results	2022 Results	2023 Results	2024 Results
Number of strategic outputs*	100	150	226			
Academic publications**	30***	100	104			
Of which first-authored academic publications	-	20	45			

* Policy reports, policy briefs, briefing notes, commentary/op-eds, submission to policy processes, non-peer reviewed articles, translations, etc.

** Peer-reviewed articles, books, book chapters, working papers, etc.

***This refers only to peer-reviewed articles.

Table 4-2: ISRP8 Key Performance Indicators for Academic Publications and Impacts (without Target)

Indicator without Target	ISRP7 Target	Indicative Reference	2021 Results	2022 Results	2023 Results	2024 Results
IGES flagship and priority publications	2	4 (FY2020)	5			
Number of peer reviewed articles with Impact Factor over 3	-	28 (Feb. 2020-Feb. 2021)	66 (CY2021, Scopus)			
Number of citations received in a calendar year by academic articles published in the past 5 years	-	714 (CY 2020)	1,433 (CY2021)			
Annual increase in citations of academic articles from previous year	-	34% (Feb. 2020-Feb. 2021, Web of Science)	34% (CY2021, Scopus)			

Note: FY results are based on CY data from SCOPUS. SCOPUS includes peer-reviewed articles and other academic publication types.

Table 5: Academic Publications with IGES as First Author

	Target	FY2021 Total	FY2021 First author	FY2021 % First Author
Academic publications (total)	20	104	45	43%
• Peer reviewed articles	NA	71	20	28%
• Books	NA	5	4	80%
• Book chapters	NA	15	11	73%
• Research reports, working papers	NA	13	10	77%

Five IGES policy and research reports were designated as flagship/priority publications in FY2021. Two IGES policy reports on climate were entitled *Private sector perspectives on carbon pricing instruments in ASEAN* and *Comparative Study on Low Carbon City Development in China, Japan, and the Republic of Korea*. The policy report on *SDGs and Business to Overcome the COVID-19 Pandemic: Actions by Companies and Organisations in Japan* (English version) and *SDGs Progress Report 2022: Survey Results on the Efforts of GCNJ Companies and Organisations* (Japanese version) are part of bilingual annual series on Japanese business and SDGs, while the research report *State of the Voluntary Local Reviews 2022: Overcoming Barriers to Implementation* is the latest report in an annual series on SDG VLRs.

Other notable publications on climate included two books in Japanese for general audiences, especially business on decarbonisation (*Understanding Decarbonisation through Manga- Carbon Neutral* and *Introduction to Decarbonisation Management: Competitiveness in the Age of Climate Change*).

Other publications included an edited book on *Aligning Climate Change and Sustainable Development Policies in Asia*, a series of policy reports on 1.5 degree lifestyles based on surveys of citizens in several cities in different countries, and working papers on China's 2060 net-zero declaration on carbon pricing in Asia. Integrated approaches were promoted in a peer reviewed article on "One Atmosphere: Integrating Air Pollution and Climate Policy and Governance".

Further notable publication on SDGs included peer-reviewed articles on "System-level Consequences of Synergies and Trade-offs Between SDGs" and "Development of an SDG Interlinkages Analysis Model at the River Basin Scale", and a policy brief on "Using the SDGs to Realize the G7's 'Green Revolution that Creates Jobs'" which was published by T7.

Waste and plastic pollution were highlighted by various publications, including peer reviewed articles on "Microplastics in Freshwater Environment in Asia: A Systematic Scientific Review", "COVID 19 impact on household food and plastic waste generation in Bangkok", "Source Separation in Municipal Solid Waste Management: Practical Means to Its Success in Asian Cities", and "Current State of Microplastic Pollution Research Data"; a policy report on plastic pollution in Da Nang City; and a working paper on "Health Care Waste Management Towards the Circular Economy".

IGES continued to emphasise submissions to policy processes in FY2021. Submissions to policy processes focused especially on climate, COVID-19, SDGs and waste. These included five joint submissions to the first Global Stocktake (GST) of the Paris Agreement, together with the Japan Aerospace Exploration Agency (JAXA), and the Japan International Cooperation Agency (JICA), among others; a National Action Plan on Plastic Waste Management for Sri Lanka; and an action plan on marine plastic litter for Da Nang City; and a position paper on "Actionable Recommendations and Ambitious Directions for Restoring Planetary Health in the COVID-19 Era," and IGES key messages for the High-level Political Forum

(HLPF). Seventeen briefing notes on the status and interpretation of major global policy processes were produced, especially related to climate negotiations and IPBES.

IGES made important contributions to seven major assessment reports in FY2021 in various capacities. For the IPCC Sixth Assessment Report (Working Group 3), two IGES researchers were Lead Authors for two chapters, and one was a Lead Author for the Summary for Policymakers. IGES contributed to four IPBES assessments, through one Coordinating Lead Author and one Lead Author of the *Thematic Assessment of the Interlinkages Among Biodiversity, Water, Food and Health* (“nexus assessment”), Lead Author of the *Thematic Assessment on Sustainable Use of Wild Species*, and a Fellow of the *Thematic Assessment of the Underlying Causes of Biodiversity Loss, Determinants of Transformative Change and Options for Achieving the 2050 Vision for Biodiversity*. IGES served as the Technical Support Unit for the *Thematic Assessment of Invasive Alien Species and Their Control*. IGES coordinated two reports on ASEAN, the *ASEAN State of Climate Change Report* and the *Sixth ASEAN State of the Environment Report*. IGES also contributed to UNEP’s Steering Committee on the Future of the *Global Environment Outlook* (GEO).

IGES has continued to produce translated outputs. Last year 38 translations were produced (E→J: 23, J→E: 5, others 10), one more than in the previous year, including translations of both IGES and non-IGES publications. Translated outputs remained popular, accounting for four of the top 25 downloaded outputs, so they may be having some impact. Some translations of new editions of major UN reports into Japanese were continued from the previous year including the United Nations Environment Programme’s (UNEP) *Adaptation Gap Report* (Executive Summary) and *Emissions Gap Report* (Executive Summary), and the *Asia and the Pacific SDG Progress Report* of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). Other major translations included the International Resource Panel’s (IRP) *Policy Options to Eliminate Additional Marine Plastic Litter*, and the *World Business Council for Sustainable Development’s Vision 2050*.

Table 6: Translated Outputs

		FY2019	FY2020	FY2021
By Language	English→Japanese	23	22	23
	Japanese→English	9	12	5
	Other language	0	3	10
By Type of Output	Non-IGES Outputs	16	12	12
	IGES Outputs	9	19	23
	Commissioned work	7	6	3
Total Translations		32	37	38

(2) Citations of peer-reviewed articles

IGES continues to make good progress in terms of citations to peer-reviewed journal articles as shown in Table 7. IGES has tracked citations for seven years using two different calculation methods, one from the Web of Science (WOS) which tracks citations mainly in academic articles, and one using Google Scholar, which tracks citations in a much wider range of publications including “grey literature” and outputs by international organisations. From FY2021, results from WOS will be replaced by the results from SCOPUS, since SCOPUS covers a wider range of publication types, including books and book chapters. However, this year’s comparison will include the figures from both WOS and SCOPUS.

Citations of IGES Publications are presented in Table 7. IGES has over twice as many cumulative citations as calculated by Google Scholar (15,930) compared to the Web of Science (7,600), and Google Scholar is considered more appropriate for IGES since the target audience for IGES outputs is much wider than just the academic community, which is the focus of Web of Science. IGES also has 25% more cumulative citations in SCOPUS than WOS. Citations in the Web of Science increased by 1,800 between CY 2020 and 2021, an increase of 31%, for a total of 7,600. In comparison, the total number of citations in SCOPUS during the same period increased by over 2,400 to 9,502, a 34% increase, based on 104 additional publications. The continued steady increase in the number of citations may be attributed to the increasing number of peer-reviewed articles as well as the increasing number of articles which are published in higher ranking journals such as *Sustainability Science*, *Journal of Cleaner Production*, *Energy Policy*, *Applied Energy*, *Climate Policy*, etc.

Citations of IGES titles published in the previous five years in SCOPUS doubled from 714 in CY 2020 to 1,433 in CY2021. Thus, newer titles published in the previous five years accounted for 60% of all new SCOPUS citations in CY2021, indicating that the newer articles have become more important compared to the older ones in driving the number of citations.

IGES does not track citations for all publication types because many are not included in WOS and checking one by one on Google Scholar is very time consuming. However, SCOPUS includes more publication types so its coverage will include more IGES publications, but SCOPUS will still not comprehensively include all IGES publications.

Table 7: Citations of IGES Publications

	Web of Science (WOS)*	SCOPUS*	Google Scholar (WOS titles)*	Google Scholar (SCOPUS titles)*
Cumulative total articles CY 2020	430	525	(430)	NA
Cumulative total articles CY 2021	496	629	(496)	(602)
Articles yearly increase CY 2021	66	104	NA	NA
Articles percent increase CY 2021	15%	20%	NA	NA
Cumulative citations CY 2020	5,800	7,094	10,914	NA
Cumulative citations CY 2021	7,600	9,502	NA	15,930
Citations yearly increase CY 2021	1,800	2,408	NA	NA
Citations percent increase CY 2021	31%	34%	NA	NA
CY 2020 Citations of titles published in the past 5 years in SCOPUS **		714		
CY 2021 Citations of titles published in the past 5 years in SCOPUS **		1,433		
Percent increase in CY 2021 citations of titles published in the past 5 years in SCOPUS**		101%		

Notes:

* Approximate values calculated in Feb. 2021 and Feb. 2022 (WOS, GS) and July 2022 (SCOPUS).

**SCOPUS includes peer-reviewed articles and other publication types such as book chapters, etc.

(3) Strategic Research Fund (SRF)

In FY2021, 19 SRF projects were approved. As in FY2020, nearly all the proposals were accepted, although a few proposals were shifted to the SOF, and most did not receive the full requested budget. Therefore, most of the projects were on a relatively small scale.

A review of the FY2020 SRF was conducted in FY2021, and the results were positive, generally exceeding the results found in the reviews of previous years. Overall, 44 completed outputs (including 17 peer-reviewed articles) were produced, 12 more than 32 from the previous year's initial review), while another 23 outputs made significant progress (completed draft, submitted for review, or accepted for publication). The number of funding proposals developed was 21, compared to 16 in the previous year, of which 12 were accepted, five rejected, and four were waiting for results at the time of the review. Some projects even achieved a certain level of impact despite the very short timeframe. All projects had a reasonable impact strategy, and most made at least some progress, especially by making presentations, funding proposals, and building relations with collaborators, policymakers, and other stakeholders. Some were mentioned in the media, for example *Asahi News* and *Hokkaido News*, or highlighted in published reports such as *Plastic Atlas Asia*, or major global events such as the High Level Political Forum (HLPF) and the Asia-Pacific Forum on Sustainable Development (APFSD). The results of one project were used to develop a local climate change action plan for Da Nang City in collaboration with the city government. Overall, the SRF served as an effective internal mechanism to support IGES's own research activities.

In addition, the FY2019 projects were surveyed again to check the longer-term effectiveness of the SRF. It was found that in FY2020, the FY2019 projects produced 24 additional outputs and one additional funding proposal (accepted).

(4) Sustainability Science

IGES jointly manages the peer-reviewed journal *Sustainability Science* (published by Springer) with the University of Tokyo, and the editorial office is located at IGES. IGES President Kazuhiko Takeuchi is the Editor-in-Chief. In 2021, the journal's impact factor increased to 7.196, and its 5-year impact factor increased to 7.934. The journal's acceptance rate in 2021 was 27%, and a total of 168 articles were published. The Managing Editor is an IGES researcher, and in 2021, 14 IGES researchers served as editors and 11 served as reviewers. IGES researchers published 12 peer-reviewed articles in the journal in FY2021.

1.2.3. Strategic Networking and Communications

Along with strategic and academic outputs, strategic networking and communications are indispensable elements for impact generation. IGES defines impact as tangible societal changes, as well as changes in individual behaviour, due to actions taken by IGES and its partners. In other words, the purpose of strategic networking and communications is to plan, coordinate and execute operations necessary to deliver IGES messages in a way that stimulates people's thinking and behaviour.

Strategic networking allows IGES to not only build and maintain relationships with partners who share the same objectives, but also leverage the strengths of each partner to enhance joint operations and create synergies. Depending on the characteristics of the partner, there are various types of networks, including those that contribute to the co-production of strategic and academic products and those that contribute to the creation and enhancement of opportunities to disseminate IGES messages and recommendations. These networks will form the basis for the IGES strategic operations.

In FY2021, partnerships with key international organisations (UNEP, UNESCAP, UNFCCC, etc.) were maintained and strengthened, and there were several new developments. These include strengthening partnerships with the United Nations Department for Social and Economic Affairs (UNDESA) through the preparatory process for the Third Global Conference on Strengthening Synergies between the Paris Agreement and the 2030 Agenda for Sustainable Development held in July 2022; convening of an ASEAN-IGES high-level online meeting based on the successful implementation of various projects in the ASEAN region; and strengthening partnerships with youth organisations in Japan through, for example, joint engagement in the Stockholm+50 processes.

The purpose of strategic communications is to deliver key messages and recommendations from IGES strategic and academic publications, as well as key findings from important global assessments on the environment and sustainable development, through IGES communication channels in order to contributing to impact generation and encouraging people to change their behaviour.

IGES's communication channels include but are not limited to online and face-to-face events convened by IGES and its partners, press releases, websites, newsletters and social media. Furthermore, exposure to external media such as newspapers, TV and radio programmes and magazines is essential for generating social impact, and therefore media exposure will be actively sought and obtained.

The results are measured in terms of the number of visitors to the IGES website and the quality and number of media exposures. Table 8 (below) summarises key performance indicators for strategic networking and communications, including annual targets and achievements.

Table 8: ISRP8 Key Performance Indicators for Strategic Networking and Communications

Indicator without Target	Baseline (ISRP7)	Indicative Reference	2021 Results	2022 Results	2023 Results	2024 Results
MOU with key international organisations	10	Maintain	12			
Pageviews of IGES Website	1,080,000 (FY2020)	Annual increase by 20,000	1,404,461			
Media Coverage	250	300 (2021 target) and annual increase by 10	255			

In FY2021, the number of website views (page views: PV) averaged 117,000 PV per month and 1,404,000 PV for the year. This is a significant increase of 400,000 PV per year from the previous year, and the growth rate is also the highest ever. The main reasons for this leap are improved in-page search performance and an increase in the number of 'Special Pages'. In particular, 23 special pages on the Japanese-language website were newly published or updated compared to 13 in the previous year, and the total number of views in the 'special pages' category was approximately 180,000 PV, almost four times the previous year's total. The 'Special pages' are also known as project pages, which are a group of content that allows users to view a project-by-project summary of IGES's activities. In FY2021, the most viewed project pages were "Q&A - COP26 Basics", which was launched on the occasion of COP26, and "G7/G20 Special Page", which continued from the previous year. In particular, the inflow from search engines has increased compared to the previous year, indicating that content that aggregates information that is highly needed in a timely manner is successfully capturing the world's search needs. The number of downloads of publications, which is closely related to the number of PV, has remained largely unchanged from the previous year. It can be said that the special pages have attracted an audience, but that they have not sent them to the publications database or that there is insufficient incentive to download the publications. The new customer relationship management (CRM) tool introduced in FY2022 will help to clarify and improve this issue.

In FY2018, the amount of media coverage increased as publications and press releases on the topic were picked up by Kyodo News Wire and other media, but the amount of exposure has decreased with each passing year since then, and it also decreased in FY2021. However, in inverse proportion to the decrease in the amount of exposure, the number of interviews and inquiries has increased year by year. In line with this, the number of opportunities for exposure in the form of independent interviews, TV appearances and Op-Eds has increased, with TV exposure on six occasions being the most ever, and the most outstanding. All previous TV appearances were on local stations or BS broadcasts, but five were on terrestrial television, including one each on NHK Educational and General channel and three on Fuji TV, and the remaining one was NHK World, NHK's overseas broadcast, which was a very significant exposure in terms of IGES' goal of disseminating information to English-speaking countries. In addition, several independent interviews or Op-Eds have been published in newspapers and magazines, including the Nikkei, Mainichi and Weekly Toyo Keizai. New contacts were also developed with The Diplomat, an online media outlet for environmental policymakers in Asia, leading to the publication of several Op-Eds. Furthermore, opportunities to contribute to Nikkei Asia were also secured, as in the previous year. We will continue to focus on reaching out to foreign media and securing exposure in influential domestic media. We will also consider how to measure the media coverage in this report, paying attention to quality of the media and content, rather than the amount of coverage numerically. As for social media, in addition to Twitter, Facebook and LinkedIn, we have started operating a blog-type media called "note". All of these are steadily gaining followers.

2. Governance

2.1. Summary of Financial Settlement²

Overview

The total revenue and expenditure in FY2021 were JPY 2,794 million and JPY 2,708 million respectively, resulting in a surplus of JPY86 million due to the foreign exchange valuation gain of JPY 63 million which reflects the sharp depreciation of the yen³. (Table 9 and 10).

JPY 23 million, excluding foreign exchange valuation gains out of the surplus, was reserved for the Deposit for Promoting Strategic Initiatives for the Institute's own activities, which are expected to be promoted further in the 8th Phase, resulting in a balanced substantial financial performance for FY2021 (excluding foreign exchange valuation gains) (Table 9).

Table 9: Substantial Balance and Unrestricted Net Assets (JPY million)

		FY2017	FY2018	FY2019	FY2020	FY2021
Fiscal Balance		99	26	▲ 72	▲ 19	86
Deposit for Promoting Strategic Initiatives	Withdrawal in total			72	19	
	Reservation	99	26			23
Substantial Balance		0	0	0	0	63*
*Foreign exchange valuation gains						
(Reference)						
Unrestricted net assets at end of year		971	994	922	903	989
(included in the above)	Deposit for Promoting Strategic Initiatives	352	378	306	287	309

Breakdown of Revenue and Expenditure

Major items for both revenue and expenditure are summarized in Table 10.

Table 10: Breakdown of FY2021 Financial Results (JPY million)

	FY2020 (Result)	FY2021 (Result)	2022-2021 Difference
【Revenue】			
Contribution from MOEJ	500	500	0
Subsidies from Local Government	133	132	-1
External fund for Projects	1,677	1,856	179
Others	31	96	65
<Foreign exchange valuation gain>	<0>	<63>	
Total	2,341	2,584	243
Support for office rent by Local Government	216	210	-6
Grand Total	2,557	2,794	237
【Expenditure】			
Operation Costs for Externally Funded Project	667	790	123
Operation Costs for Own Initiatives	77	74	-3
Personnel Costs	1,356	1,366	10
Administrative Costs	269	268	-1
Total	2,369	2,498	129
Office rent supported by Local Government	216	210	-6
Grand Total	2,585	2,708	123
Balance	-28	86	
(Reference)			
Project FVA Ratio (overall average)	66%	64%	

² Excluding APN, IPCC-TSU and JISE

³ Exchange rate used for settlement: 110.61 JPY/USD (30 June 2021) and 136.69 JPY/USD (30 June 2022).

On the revenue side, the overall volume of raised funds reached about JPY 1,856 million, in addition to the contribution from MOEJ (JPY 500 million) as well as subsidies and support from local governments including Kanagawa Prefecture, Hyogo Prefecture and Kitakyushu City (JPY 132 million).

Under external funds, in addition to the domestic projects from Ministry of the Environment and others, IGES operationalised various overseas projects funded by International Tropical Timber Organization (ITTO), International Urban and Regional Cooperation (IURC) of (EU), Japan-ASEAN Integration Fund (JAIF), GIZ, KR Foundation, SWITCH-Asia SCP Facility of European Commission (EU), UNFCCC, UNEP, UN-Habitat, UNU-IAS, We Mean Business, World Bank and others.

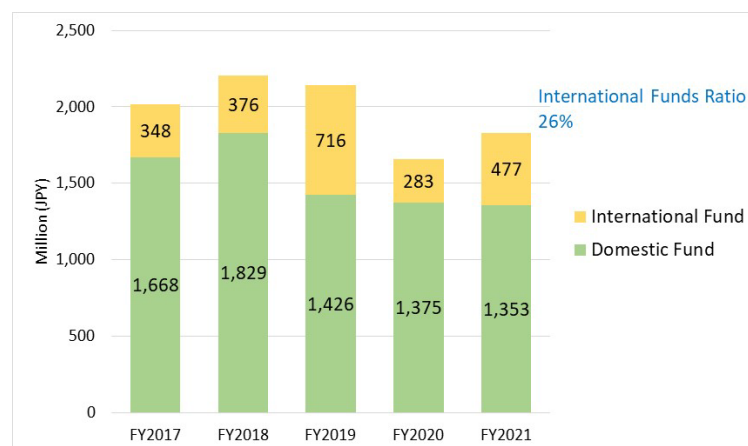


Figure 1: External Funds by Source (FY2017-FY2021)

In FY2021, businesses were better able to cope with the impact of COVID-19, such as virtual/online activities (international/domestic conferences, capacity building activities and on-site research activities) or hybrids with face-to-face meetings with limited participants became common. These activities resulted in maintaining low costs for overseas travel and conferences.

Personnel costs⁴ and administrative costs maintained the almost same level of the previous year at the settlement-base. The ratio of the administrative costs out of the total expenditure was 10.1%

The project FVA ratio on average was maintained at over 60%, more specifically 64% at the settlement-base⁵, which contributed to securing the amount of FVA to allocate enough funding to human resources and others required to implement strategic research and operations.

The results of key performance indicators set for governance for ISRP8 are summarised in Table 12.

2.2. Human Resource (HR) Management

SMO-PM continued its recruitment activities from the previous year to acquire the human resources necessary for strategic research activities in the 8th phase, and almost established the required structure. SMO-PM also maintained a system for teleworking to contribute to strengthening both productivity and work-life balance such as raising the percentage of teleworking for the staff members with a child/family

⁴ In accounting, the incurred personnel costs are logged when the project is completed and corresponding payment is made. Thus, the personnel costs of FY2021 in Table 10 include those incurred for the whole period (including FY2020) in each project completed in FY2021, but it excludes those in the ongoing projects. For these reasons, this personnel costs (Table 10) do not directly reflect the number of staff members (Table 11).

⁵ The average ratio of the projects for which revenue was recorded in FY2021. Projects for which FVA is zero by nature (APN projects, UNFCCC projects, grant projects, etc.) are excluded. See Notes to indicators [3] in the Table 12 for the definition of the project FVA.

to take care of, allowing teleworking from locations other than staff's own home by pre-registration, etc. SMO-PM introduced a flex-time system to those not under a discretionary working system so as to manage their working hours more efficiently.

Under the leadership of the ISC team, PM has commenced promotion of IGES's diversity, inclusion and work-life balance issues in the context of SDGs by setting an institutional initiative to identify issues/challenges and possible measures for improvement. This initiative will continue in FY2022.

Continuing from last year, a training opportunity to improve leadership and communications skills was provided for Senior and Principal staff members. PM has continued to support capacity development opportunities for staff members at other organisations, such as JICA, ERIA and Kawasaki Environment Research Center, and has also supported opportunities to receive seconding or visiting researchers from other institutions/companies.

Childcare support certification (so-called Kurumin*) and women's participation promotion certification (so-called L-boshi*) were successfully maintained.

*Certified by Labour Bureau of the Ministry of Health, Labour and Welfare in Japan

Table 11: IGES Full-time Staff Members [1]

		(Positions)	
Categories		FY2021 Beginning As of 1 July 2021	FY2021 End As of 30 June 2022
Professional Staff		150	158
	Principal staff	28	29
	Senior staff	53	59
	Associate staff	39	41
	Administration Specialist	21	21
	Dispatched from other organisations	9	8
Assistant Staff		6	5
Total: IGES Staff members (Full-time)		156	163
Number of Administrative Staff [2] (Ratio of administrative staff in total staff)		15.8 (10.1%)	13.8 (8.5%)

[1]: Temporary staff are excluded

[2]: Number of staff members at SMO Planning and Management after reflecting the actual contribution caused by concurrent appointment, etc.

The results of key performance indicators set for governance for ISRP8 are summarised in Table 12.

2.3. Internal Management

PM continued to improve efficiency for internal administrative procedures. An online IGES Proposal and Project Review System (PPRS) and an online internal decision-making approval system (Kian) system both introduced in FY2021 became fully operational and supported efficient fundraising and project information management replacing paper-based procedures. A new online Kian system allowed for transparent handling of these types of decisions without requiring staff to be physically present in IGES offices or having to exchange mail paper-based forms (see notes under Table 12). A new cloud-based accounting system which is globally used was introduced with a trial period in FY2021 and will be fully rolled out in FY2022. The system is expected to increase the efficiency of accounting process by eliminating paper-based documentation and interfacing with other devices (such as smartphone). PM also

looked into alternative HR management services to upgrade existing systems and the process is still ongoing.

SMO Technology Solutions Services (SMO-TS) team continued to act as a centre for improvement and innovation in IGES systems, tools and communications channels. In addition to the support to systems mentioned above, SMO-TS led the rollout of an improved search system on the IGES website, and developed a system to be launched in July 2022 for acquiring DOIs for IGES publications as well as support DOIs obtained from other sources. SMO-TS also continued to maintain and support a number of systems, services and websites including the CCET website, Slack, and Zoom as well as support for physical communications support through Zoom Rooms and personal meeting spaces at IGES HQ. IGES facility management team maintained and upgraded IT systems equipment, including staff personal computers and internet connections.

IGES Eco-Action 21 committee passed the mid-year audit for renewing the environment management certificate (*Eco-Action 21* programme administered under Ministry of the Environment, Japan). The committee continued promoting and monitoring the reduction of CO2 emissions from energy use at IGES offices and from overseas mission travels (two major sources of emissions by IGES) (see notes under Table 12) and the reduction of paper use at offices by promoting online and paperless meetings.

In FY2021, PM coordinated and completed the Integrative Strategic Research Programme for the 7th Phase (ISRP7) External Review (an overall review meeting and individual research unit reviews), upon the completion of ISRP7 in June 2021. PM continued strengthening institutional governance by updating/revising internal procedures, making them more transparent and meeting the international standards and practices.

The key achievements in HR and internal management in FY2021 and the results of key performance indicators set for governance for ISRP8 are summarised in Figure 2 and Table 12, respectively.

HR Management

- Necessary HR to conduct strategic research activities under ISRP8 almost recruited and allocated.
- Taskforce on diversity and inclusion (D&I) led by ISC-SGC team launched to make IGES more SDG-compatible
- Opportunities to work at other entities and to work with those from other entities were supported.

Internal Management and Other

- A new accounting system introduced.
- *Proposal and Project Review System* (PPRS) and an online internal approval system fully operational; various IGES systems and tools (website, publication database, *Zoom*, *Slack*, staff PC, etc.) upgraded.
- Env. management certificate (Eco-Action 21) mid-year audit passed.
- ISRP7 External Review completed; various internal procedures updated/ revised.

Figure 2: Key Achievements in HR and Internal Management in FY2021

Table 12. ISRP8 Key Performance Indicators for Governance

Indicator with Annual Target	Baseline (ISRP7)	Target for ISRP8	2021 Results	2022 Results	2023 Results	2024 Results
Core fund contribution from Ministry of the Environment	JPY 500 million	JPY 500 million	JPY 500 million			
Support from the three local governments (subsidies, etc.) [1]	Around JPY 135 million	Around JPY 135 million	JPY132 million			
Volume of external funds (other than contribution and subsidies)	USD 20-25 million	USD 22-27 million	JPY1,856 million			
Ratio of international external funds [2]	over 25%	as much as 40%	26%			
Ratio of project financial value-added (FVA) (proposed budget-based) [3]	52% (FY2020 target)	55%	64%			
Ratio of general administrative cost in the total expenditure [4]	9% (FY2020 target)	9%	10.1%			
Ratio of administrative staff in total (Number)	11% (FY2020)	9%	8.5%			
Ratio of taken annual leave	57% (FY2019)	80%	59%			
Indicator without Target	Baseline (ISRP7)	Indicative Reference	2021 Results	2022 Results	2023 Results	2024 Results
Number of full time staff members	156 (FY2020)	160+ (plan) [5]	163			
Ratio of Tenure/Tenure-track staff in total	14% (FY2020)	50% [5]	48%			
Ratio of female staff in management positions (Principal staff)	19% (FY2020)	30% [5]	24%			
Rate of teleworking [6]	40% (FY2020)	40%	40%			
Overtime [7]	10.5 hrs (Monthly overtime hours per person in FY2019)	Continue to be reduced	8.4 hrs			
CO2 emissions reduction from energy use and overseas missions [8]	450.7 t-CO2 (Energy use, FY2020)	n/a	340.6 t-CO2 (Energy use)			
Number of web-based systems introduced, replacing paper-based systems	-	No further paper-based systems [9]	4			
Staff Satisfaction Survey [10]	Conducted in 2019	To be conducted in 2023 (tbc)				

Note for indicators:

- [1] Excludes support for HQ office rent from Kanagawa Prefecture and for KRC office rent from Hyogo Prefecture.
- [2] The definition is changed from the 8th Phase, and funds provided by institutions located overseas and funds from international organisations are considered as “international external funds”.
- [3] Project FVA is calculated as: revenue less project operating expenditures such as outsourcing and travel costs. This is the amount available for personnel and other expenditures necessary for IGES strategic research and operations.

- [4] Excludes administrative costs for APN, JISE and TSU.
- [5] Largely depends on the recruitment (every four years in general) or promotion during the research phase (unscheduled). Figures are from ISRP8.
- [6] The standard level of teleworking (non COVID-19) at the individual level. The ratio will be reviewed when IGES's operation becomes stable and effective, and no-barrier in communications with satellite offices are realised.
 In FY2021, the level of teleworking in offices in Japan was set at 70% in July-October and 50% in November-June 2022 in accordance with the guidance from the government (declaration of a state of emergency, etc.). The level of teleworking rates for staff with special family or health needs were set in a flexible manner.
- [7] Overtime by staff members who are not under the discretionary labour system was applied. A flexible work hours system was introduced for staff members who are not under the discretionary labour system in FY2021.
- [8] COVID-19 pandemic made large impacts on CO2 emissions both from office energy use and overseas missions. The target will be developed for the post COVID-19 period. The volume of CO2 emissions will be monitored and also reported to the environmental management certification audit (*EcoAction 21*).
 In FY2021 the CO2 emissions from energy use at IGES offices (both electricity and gas at HQ, KRC, KUC and TSF) were estimated at a total of 340.6 t-CO2, reduced from the previous year by about 24%. Reduction came from continuous efforts to reduce energy use at offices and procurement of renewable energy (RE) origin electricity at the headquarters (from March to June 2022, the fourth quarter of FY2021). However, RE electricity supply was suspended from July 2022 due to the provider's sudden withdrawal from the electricity market caused by the disruption in the energy sector. The CO2 emissions from overseas travel (use of airplane, the other major source of emissions at IGES) was estimated at 52.3 t-CO2 (from 37 overseas missions), increased from the previous year due to the relaxation of travel restrictions.
- [9] Except for systems that are paper-based due to regulatory requirements. The indicator was revised due to difficulties in counting all paper-based systems.
 In FY2021, Proposal and Project Review System (PPRS), an online internal decision-making approval process (Kian), electronic contract system and electronic seal system were fully rolled out.
 The efficiency of above systems (PPRS and Kian) were also assessed. For PPRS, the average time to decision was about 2 days (number of samples: 84) significantly reduced from paper-based procedures during ISRP7. For Kian, the average time to decision was 7.1 days (4.0 days after a reminder function was added in late May 2022), reduced from that of paper-based procedures during ISRP7 (approximately 8-9 days).
- [10] Administered by Japan Productivity Center (JPC).

3. Summary of Achievement in FY2021

The overall achievement (self-evaluation) for FY2021 is considered as successful and a good start for ISRP8. As for impact generation, a total of 40 impact cases are reported, meeting the target of 30. Out of the 40 cases, those considered as “large-scale impacts” totaled eight cases and IGES’s successful interventions were recognised by the target stakeholders. As for the outputs, the three targets (the number of Strategic Outputs, Academic Outputs and publications by IGES staff as first author) were met, and a number of peer-reviewed journal articles, especially in journals with relatively high impact factors, were published. While IGES has been developing its strategic communications capabilities to reach stakeholders through various media and contributing to the impact generation, this was not fully reflected in the amount of media coverage, which is used as a reference indicator in the report. As mentioned in the section above, we will continue to strengthen outreach to domestic and foreign media and monitor media coverage, paying attention to the quality of media and content.

As for governance, the necessary FVA were secured to support the planned activities despite the lingering impacts of the COVID-19 pandemic from previous years. The introduction of a new online system and tools made remote business activities at IGES more effective and efficient. Training sessions were offered to Principal and Senior staff members to improve leadership and communications. With regard to the expansion of the ratio of international funding to total funds (aimed at increasing to about 40% during the 8th Phase) which has been set as an indicator from the perspective of stabilising operations through diversification of funding sources, it will be revisited, including a revision, based on the results and further assessment of the impact of COVID-19 on external funds and other factors.

ANNEX 1. SUMMARY OF KEY ACHIEVEMENTS BY UNIT

1. Integrated Sustainability Centre and Four Issue Areas

1.1. Integrated Sustainability Centre (ISC)

Integration of climate change, circular economy, biodiversity and disaster risk reduction should be fully explored under the overarching framework provided by the SDGs. In this respect, ISC has been collaborating with UNDESA to promote synergies between sustainable energy and the SDGs. This is in line with international efforts to achieve socio-economic transformation towards decarbonisation. At the Asia Pacific Forum on Sustainable Development in 2019, ISC presented a set of key messages corresponding to the six entry points of the Global Sustainable Development Report. In addition, ISC has started to pay more attention to the concept of “just transition.”

(1) Focus for Impact Generation in ISRP8 by Unit

ISC will work with stakeholders in Asia and the Pacific to accelerate progress on the SDGs and formulate an ambitious post-2030 agenda. ISC will work toward this objective by strengthening the science-policy-society interface. ISC’s research and programming will combine science-based tools and methods (interlinkages analysis, scenario analysis and machine learning); socially-response governance models and strategies (polycentrism and metagovernance); and cutting-edge policy frameworks and solutions (e.g. Regional-CES, Triple-R framework, green recovery, just transition, co-benefits integrated NDC/VNR/National Biodiversity Strategies and Action Plans (NBSAPs), integrated local climate action/VLR/Local Biodiversity Strategies and Action Plans (LBSAPs)). This unique combination of tools and perspectives will be employed in concrete case studies and shared during key policymaking processes Asia Pacific Forum for Sustainable Development (APFSD)/High-Level Political Forum (HLPF)/UN General Assembly (UNGA), UN Environment Assembly (UNEA), and G7/G20), solidifying our position as a change agent on sustainability in Asia-Pacific and beyond.

(2) Major activities in FY2021

(a) The Governance, Inclusivity and Sustainability (ISC-GIS) team

ISC-GIS team promoted governance that accelerates progress and raises ambitions on the Sustainable Development Goals (SDGs). Because of the inherently interlinked nature of the SDGs, much of the work of the GIS team concentrated on modes of governance that enable integration across different sectors or includes various segments of society in key decision-making processes. Some of our research explored how this can be achieved at the national level across Asia, while another stream concentrates on how Japanese businesses are making connections to SDGs in their planning processes. A third area of work focused on governance that can promote the co-benefits between climate change and other development priorities. A final set of activities was examining what forms of governance are needed for a sustainable and just transition that leaves no one behind in Asia.

Helping Japanese Business to Accelerate Progress on the Sustainable Development Goals (SDGs)

In 2021, ISC continued to promote the integration of the SDGs into core planning processes among Japanese businesses. In collaboration with the Global Compact Network Japan (GCNJ), ISC launched a new report that demonstrated progress on how Japanese businesses were working on the SDGs. Notably, more than 80% of surveyed businesses indicated that they are integrating the SDGs into their management strategies. At the same time, ISC is also leading the way in showing companies how they can take the SDGs forward and close gaps on issues such as circularity, supply chains and human rights. The SDGs

GCNJ report is one of the most downloaded IGES outputs and has been cited in key policy documents such as Japan's VNR.

Strengthening the Voluntary National Reviews (VNRs) and the Environmental Dimensions of the SDGs

Since 2021, ISC has been working with the United Nations Environment Programme (UNEP) to evaluate 50 Voluntary National Reviews (VNRs) that countries in the Asia-Pacific produced between 2016 and 2021. Among others, the preliminary findings of the project include recommendations on how VNRs can strengthen the implementation of the environmental dimensions of the SDGs, how countries can improve coherence between successive VNRs and how challenges with data and indicators can be approached. The results of this project are helping UNEP and partners to underline broad trends and good practices on VNRs that are intended to accelerate needed progress on the SDGs in Asia and the Pacific.

Enhancing Governance and Follow-Up and Review of the SDGs in Japan

In 2021, ISC was successfully awarded a multi-year project that will build on recommendations offered to the Ministry of Foreign Affairs of Japan in 2020 on what Japan can learn from Europe in governing the SDGs. The project will focus on establishing an effective methodology for the follow-up and review process and the alignment between those processes at the national and local levels. The recommendations are intended to complement previous suggestions on how Japan can enhance its multi-stakeholder engagement process and feed into Japan's VNR.

Putting Living within Planetary Boundaries at the Core of the Regional SDGs Agenda

In 2021, ISC developed a set of key messages for the Asia Pacific Forum on Sustainable Development (APFSD). The messages outlined how policymakers in Asia and the Pacific can live within planetary boundaries, and were shared widely at the Asia Pacific Forum on Sustainable Development and the High Level Political Forum (HLPF).

Advancing Co-benefits in Asia

In 2021, ISC continued to work with researchers from the International Institute for Applied Systems Analysis (IIASA), the Asian Development Bank, Clean Air Asia, Stockholm Environment Institute, the National Institute for Environmental Studies and the Institute for Advanced Sustainability Studies to promote the implementation of policies and projects that can deliver co-benefits. Those activities are contributing to a co-benefits action plan in Thailand; the integration of co-benefits into climate policies in Mongolia; a new initiative to recognise the co-benefits from climate finance projects from the ADB; and the uptake of co-benefits interventions across Southeast Asian countries and cities.

Contribution to the IPCC

ISC-GIS contributed as a lead author to the Sixth Assessment Report of the IPCC Working Group Three on Accelerating the Transition in the Context of Sustainable Development. The chapter underlined the importance of achieving synergies between climate change and sustainable development as well as just transitions. More than 50 current and former IGES staff had articles that were cited in Working Group Three.

(b) The Quantitative Analysis (ISC-QA) team

ISC-QA team functioned as a hub to strengthen the science-policy linkage for achieving sustainable development. It contributed in creating value-added knowledge through strategic research and quantitative policy assessment so as to provide practical policy recommendations, helping informed policymaking and problem-solving in developing countries in Asia and the Pacific and beyond. The ISC-QA team worked to support integrated policymaking at the national and sub-national levels by informing the policy makers

on the synergies and trade-offs among the SDGs and between their targets through the applications of IGES' SDG Interlinkages Tool. Work was also done on applying the scenario analysis approach, particularly Shared Socioeconomic Pathways (SSPs), to cities to support urban planning and policy development in collaboration with key partners.

Integrated Policymaking through the Applications of IGES' SDG Interlinkages Tool

Supported by IGES' Strategic Research Fund, the Quantitative Analysis Team developed the SDG Interlinkages Tool (<https://sdginterlinkages.iges.jp/visualisationtool.html>) to support integrated policymaking through identifying, quantifying and visualising the interlinkages between the SDGs and their targets. The free online tool covering 27 countries in Asia and Africa has been accessed from more than 180 countries and used in the national voluntary reviews in Indonesia (in 2019 and 2021) and Ghana (in 2020) to elaborate the integration of the three dimensions. Recently, a novel methodology on automating the process of a systematic review of the causations among SDGs was developed using artificial intelligence-based Natural Language Processing techniques (with funding from Google's AI for Social Good Program). Furthermore, stakeholder consultation combining online questionnaire surveys and focus group discussions was conducted to validate and contextualise the SDG interlinkages of climate action at the sub-national level in West Java, Indonesia.

Under the Belmont Forum programme on Towards a Sustainable Earth, IGES implemented a project on "Luanhe Living Lab" supported by the Japan Science and Technology Agency. ISC developed an Interactive SDG Tool for River Basins (<https://sdginterlinkages.iges.jp/luanhe/index.html>) to inform the synergies and trade-offs among the SDGs at the basin scale. A Special Feature on SDG synergies and trade-offs, Sustainability Science, was published under the project (https://link.springer.com/journal/11625/topicalCollection/AC_b8bc6d10db81e9db53d86ccb7e4b25d7/page/1).

The SDG interlinkages methodology was also used for providing inputs into the Comprehensive Development Plan of Sado City in Japan.

Long-term Scenario Analysis for Cities: Methodology Development and Applications

How climate policies can be integrated into development planning and implementation at the local level is an important research area. Methodologies for integrating scientific evidence into long-term development planning are urgently needed. An ISC researcher developed the socioeconomic pathways on an urban scale by downscaling the global Shared Socioeconomic Pathways (SSPs) developed by the climate change research community. The urban scale SSPs can play a significant role in the development and implementation of sustainable development strategies. An application of the methodology includes an on-going case study in Da Nang City, Viet Nam. A climate action plan for Da Nang City is being developed under a project on city-to-city collaboration supported by the Ministry of the Environment, Japan. This development process intensively involved local stakeholders in the city departments. Another application is SSPs Bhutan. In FY2021, energy system analysis was implemented under the nexus conceptual framework water-food-energy and health nexus solutions for a post-COVID society.

(c) The Circulating and Ecological Sphere (ISC-CES) team

ISC-CES team led the project and programmes for advancing Integrated Approach focused on the Circulating and Ecological Sphere Approach, Water Energy Food Nexus approach and Integrated Environment and Disaster Management (CES concept, WEF nexus) as practical approaches for localization of global and national goals through collaborative research, knowledge generation, multi-stakeholder engagement and capacity development.

Advancing the Circulating and Ecological Sphere (CES) approach in Asia and Pacific

ISC collaborated with START International (based in the USA) to establish a regional network to promote the CES approach in the Asia and Pacific region. A CES-Asia Consortium was established in October 2021 following the signing of a consortium agreement by IGES, START International and the leading academic and research institutes in South and Southeast Asia including Visvesvaraya National Institute of Technology (India), Faculty of Architecture and Planning, Thammasat University (Thailand), University of Dhaka (Bangladesh), University of Danang – University of Technology and Education (Viet Nam), , Royal Thimphu College (Bhutan), University of Indonesia, Ateneo de Manila University (Philippines) and Institute of Forestry of Tribhuvan University (Nepal). In collaboration with the CES-Asia consortium partners, ISC initiated the co-development of the CES cases in Thimphu National Capital Region (Bhutan), Pokhara City Region (Nepal), Haridwar (India) and Hachinohe City Region (Japan) by implementing research projects to generate evidence-based knowledge on the CES application. ISC in collaboration with START and Consortium partners conducted stakeholder consultations in eight city regions in Asia and Southeast Asia. The CES factsheets for eight cities have been developed, research results have been published in journals, and a book project on the CES Concept and its application was launched. ISC-CES also promoted the CES concept, organising events on important policy processes such as Stockholm +50 and G20/U20the U20.

Contribution to the Global Assessment Reports (IPCC and IPBES)

The ISC-CES team significantly contributed to the IPCC Sixth Assessment Report Chapter 10 (Asia Chapter). An ISC-CES researcher performed as the Chapter Scientist and contributing author for the Asia Chapter. The CES concept has been identified as an emerging integrated adaptive governance by the Sixth Assessment Report of IPCC (WG-II). ISC-CES team members also contributed to the IPBES Sustainable Use assessment as lead authors.

Promoting the water-energy-food nexus approach through international collaborative

ISC-CES implemented a Belmont Forum international collaborative project in collaboration with partner institutes in Japan, Netherlands, United States of America, United Kingdom and Qatar. The project was successfully completed in FY2021 and developed a design lead framework for optimisation of water-energy-food nexus in urban areas, developed FEW print tools to assess the performance of the design, and developed a mobile application of FEW Footprint Calculator.

(d) The Policy and Integration (ISC-PI) team

ISC-PI Team supported the development of Sado City’s “Comprehensive Plan (総合計画)” together with ISC-QA, ISC-SGC, CTY, and others. SDG mapping and interlinkage tool analysis were fully incorporated into the Plan. ISC-PI team also worked with CTY, Tokyo Metropolitan Government (TMG), University Technology Malaysia (UTM), and Sustainable Energy Development Authority (SEDA), Malaysia to support Kuala Lumpur (KL) City in setting its zero carbon city target by 2050 and to launch the “Carbon Neutral District” as a special district in Wangsa Maju area (north-east KL). This initiative was shared at UNFCCC/COP26, MOEJ Zero Carbon City International Forum 2022 and other occasions. ISC-PI team was involved in preparations to organise the “3rd UN climate and SDGs synergy conference”, co-convened by UNDESA and UNFCCC, hosted by MOEJ, in partnership with UNU and IGES, held on 20-21 July, 2022 at UNU, Tokyo.

Supporting “Decarbonization Leading Areas (脱炭素先行地域)” in Japan and Kuala Lumpur (KL)

ISC-PI team worked together with CTY, Tokyo Metropolitan Government (TMG), University Technology Malaysia (UTM), Sustainable Energy Development Authority (SEDA) Malaysia to support Kuala Lumpur in achieving zero carbon by 2050 and establishing “Decarbonization Leading Areas” in a special district of “Wangsa Maju” located in the north-east of KL. An ISC researcher served as acting chair of MOEJ’s “Evaluation Committee (評価委員会)” on “Decarbonization Leading Areas” in Japan.

Support to organise the “3rd UN Climate and SDGs Synergy Conference” in UNU, Tokyo Japan

ISC-PI team worked together with ISC-SGC and other units to organise the third global conference “Strengthening Synergies Between the Paris Agreement on Climate Change and the 2030 Agenda for Sustainable Development”, co-convened by UNDESA and UNFCCC, hosted by MOEJ, in partnership with UNU and IGES. This conference was held in July, 2022 at UNU, Tokyo, Japan.

(3) Selected publications

- Policy Report “SDGs Progress Report 2022: Survey Results on the Efforts of GCNJ Companies and Organisations”
- Discussion Paper “気候・環境関連分野に関する G7 サミットの成果とエンゲージメントグループによる提案の比較から読み解けること”
- Book Chapter “Creating Social Co-benefits for Sustainable and Just Society” (Aligning Climate Change and Sustainable Development Policies in Asia)
- Briefing Note “1.5 度目標への挑戦：メタン排出削減を加速する国際社会”
- Discussion Paper “Governing National Sustainable Consumption and Production Action Plans in the Philippines and Viet Nam: A Comparative Analysis”
- Submission to Policy Process “IGES 2022 Messages on the 2030 Agenda for Sustainable Development - Living within Planetary Boundaries to Achieve a Sustainable Future for All –”
- Peer-reviewed Article “One Atmosphere: Integrating Air Pollution and Climate Policy and Governance” (Atmosphere)
- Peer-reviewed Article “Breaking down barriers on PV trade will facilitate global carbon mitigation” (Nature Communications)
- Peer-reviewed Article “Development of an SDG interlinkages analysis model at the river basin scale: a case study in the Luanhe River Basin, China” (Sustainability Science)
- Discussion Paper “Integration of Climate Actions and SDGs at the Sub-National Scale: Results from Stakeholder Consultation in West Java”
- Presentation “Sustainable energy-food-water and health nexus solutions enhancing regional community-based supply chain systems post-Covid-19 in Bhutan” (14th Integrated Assessment Modeling Consortium (IAMC) annual meeting)
- Peer-reviewed Article “Residents’ place attachment to urban green spaces in Greater Tokyo region: An empirical assessment of dimensionality and influencing socio-demographic factors” (Urban Forestry & Urban Greening)
- Peer-reviewed Article “Exploring indigenous and local knowledge and practices (ILKPs) in traditional jhum cultivation for localizing sustainable development goals (SDGs): a case study from Zunheboto district of Nagaland, India” (Environmental Management)
- Peer-reviewed Article “Spatial characterization of non-material values across multiple coastal production landscapes in the Indian Sundarban delta” (Sustainability Science)
- Peer-reviewed Article “Towards a more sustainable and resilient future: Applying the Regional Circulating and Ecological Sphere (R-CES) concept to Udon Thani City Region, Thailand” (Progress in Disaster Science)
- Book “マンガでわかる脱炭素（カーボンニュートラル）”（池田書店）
- 環境省「地方公共団体実行計画策定・実施マニュアルに関する検討会（第2回）」に対する意見

1.2. Climate and Energy (CE)

With particular focus on the Asia-Pacific region, the Climate and Energy team (CE) is carrying out initiatives to facilitate the transition to decarbonised societies at the national and local levels. Specifically, CE looks towards strengthening climate and energy-related strategies and policies, and engages in international climate negotiations, bilateral and multilateral cooperation, carbon pricing initiatives, market-based mechanisms, and the development and maintenance of databases.

(1) Focus for Impact Generation in ISRP8 by Unit

CE will strive to generate impacts on (1) implementation of the Paris Agreement, in particular, the implementation, evaluation and updating of NDCs, the submission of biennial transparency report under the Transparency Framework, and contribution to Global Stocktake; (2) formulation of long-term zero emissions strategies and the implementation of short-term measures consistent with the long-term goals in Japan, and other Asian countries, including the practices of state and non-state actors toward the smooth and just transition, and (3) implementation of carbon pricing, JCM and other offset mechanisms to achieve net zero emissions.

(2) Major activities in FY2021

Operationalisation of the Paris Agreement

CE contributed to the adoption of the rulebook on Article 6 of the Paris Agreement by participating in COP26 as a member of Japanese delegation. After the adoption of the rulebook on Article 6, CE established a new international initiative for development of Article 6 methodology tools (II-AMT) in cooperation with the Perspectives Climate Group. Utilising the knowledge and expertise gained through its support for international negotiations, CE continued to conduct a mutual learning programme for enhanced transparency in cooperation with the governments of Asian developing countries, focusing on reporting for Articles 6 and 13. In addition, CE organised several regional knowledge-sharing workshops for enhanced transparency in collaboration with major international partners, such as the UNFCCC Secretariat, the UNFCCC Regional Collaboration Centre (RCC) and the Global Support Programme implemented by the UNEP-DTU. Seeking opportunities to build capacity, IGES organised an international conference on Article 6 with UNFCCC secretariat and Ministry of the Environment, Japan (MOEJ). Furthermore, CE began to engage in cooperation with the Japan Aerospace Exploration Agency (JAXA) to promote inputs from the Japanese satellite community into the global stocktake (GST). CE also started playing a key role in bridging science and international policy discussions, by co-implementing a regional independent global stocktake hub for non-state actors (iGST) in Southeast Asia, leading to further exploration in the new phase.

Materialisation of GHG Emission Reductions and Contribution to SDGs through Implementation of the JCM

CE contributed to implement the Joint Crediting Mechanism (JCM) which appropriately evaluates contributions to GHG emission reductions or removals by Japan, and applies them to achieving the national emissions reduction target. CE supported the development of seven MRV (monitoring, reporting and verification) methodologies. In addition, CE published the JCM-SDG best practices.

Impacts on Political and Social Debates on Carbon Pricing in Asia

Carbon pricing policy is taking shape in Asia, such as the implementation of national emissions trading schemes in China and the Republic of Korea. CE served as Japan's focal point for jointly implementing the sixth Forum of Carbon Pricing Mechanisms in Japan, Korea and China, and contributed to discussions on trilateral cooperation. CE conducted a timely overview and analysis of the design features and implementation progress of emissions trading schemes in China and the Republic of Korea. As a steering

committee member, CE supported an initiative of Asia Society Policy Institute for expanding emissions trading schemes in Asia. A working paper on carbon pricing for the transition toward net-zero in Asia was published, thereby stimulating the mutual learning of policy development.

Climate Policy Development by Visualisation of Current Status

CE engages in analysis and visualisation of climate policies around the world in order to facilitate the further development of such policies. Particularly for Asia, CE completed analysis on coal transition management for 2°C or 1.5°C goals in China and India, and a comparative study on low-carbon policy in Japan, Korea and China. Domestically, CE extended the simulation analysis of power grid system from eastern Japan to the whole country for maximum expansion of renewables. Output on the analysis of scenarios for 2030 electricity mix was published, receiving considerable media attention. Further analysis on the feasibility of achieving a zero-emission power system in Japan is nearing completion. CE contributed to the UNEP Emissions Gap Report 2021, as well as representing Japan in Climate Transparency, a Germany-based research network for G20 countries. Likewise, CE provides the most up-to-date information through regular updating of the IGES Climate Databases on various topics. In collaboration with the National Center for Climate Change Strategy and International Cooperation (NCSC), CE also developed a Low Carbon Development Indicator System and its Japanese version based on the ecological footprint concept.

With regard to research on net zero, four different initiatives were undertaken: (1) cross-divisional joint research to develop a net-zero roadmap for Japan, (2) cross-divisional joint research to develop a book on net-zero in Asia, (3) research on technology co-innovation, to identify and propose alternative ways for strengthening technology collaboration among countries, and (4) research on hydrogen economy in Asia and opportunities and challenges. Several publications have already been produced on these topics.

To communicate national and international trends toward decarbonisation, CE launched the IGES Climate Change Webinar Series in April 2021 which has been conducted 35 times through July 2022, with a total of more than 12,000 people watching live.

(3) Selected publications

- Briefing Note “COP26 最後のピース パリ協定第 6 条ルール決定について～政治レベルの合意点のポイント～”
- Briefing Note “2021 年 G20 エネルギー・気候合同大臣会合の結果”
- Discussion Paper “Elements related to carbon credit credibility”
- Data/Tool “IGES Biennial Update Report (BUR) Database”
- IGES/JAXA Joint Submissions to the First Global Stocktake (e.g., A satellite-based deforestation monitoring system for tropical forests)
- Working Paper “Carbon pricing for the transition toward net-zero of Asia”
- Working Paper “実潮流に基づく電力系統運用を行った場合の 2030 年度の電源構成に関する分析”

1.3. Sustainable Consumption and Production (SCP)

IGES conducts policy analysis from the perspective of sustainable consumption and production (SCP) including environmentally-sound waste management in cities, formation of effective recycling systems

with a view of Asia as a whole, and improvement in resource productivity. Likewise, IGES makes policy recommendations to stimulate lifestyle changes.

(1) Focus for Impact Generation in ISRP8 by Unit

SCP will boost IGES's standing as a vital and indispensable policy think-tank and development partner for ASEAN and ASEAN member states for circular economy, sustainable lifestyles and marine plastic issues. We want to be associated as having a publicly-recognized functional role in policy harmonization and regional integration of Asia and the Pacific region. CCET will be a strategic partner of UNEP and other UN agencies operating in the Asia-Pacific region, as an instrumental arm for capacity development of national and local governments in emerging countries.

(2) Major activities in FY2021

Sustainable lifestyles

SCP continued its role as the coordination desk for the Sustainable Lifestyles and Education Programme in the UN 10-Year Framework for Sustainable Consumption and Production patterns, and implemented or supported activities contributing to sustainable lifestyles at cities and communities globally. The eight projects promoting sustainable livelihoods and lifestyles in cities and communities were completed, despite the impact of the COVID-19 pandemic, and the results were published in the integrated report "Co-creating Sustainable Ways of Living 24 Stories of on-the-ground innovations". The Global Search for Sustainable Schools initiative collaborated with 84 primary and secondary schools in nine countries and supported school management reforms, infrastructure development, curriculum development and community activities to enhance education for sustainable lifestyles. For the "Envisioning Future Sustainable Lifestyles" initiative, SCP worked with local governments, research institutions and citizens in six cities in Japan and abroad. The initiative examined and piloted household and community initiatives aimed at reducing the carbon footprint of citizens to help realise the 1.5°C target for climate change.

In the EU SWITCH Asia programme, SCP has cooperated with GIZ and others to help shape SCP policies in Asian countries, and in FY2021 developed guidelines for sustainable production in the seafood industry in Viet Nam and a policy analysis report on sustainable production in the garment industry in Cambodia and provided training programmes for policy makers and businesses in both countries.

Sustainable ways of living require changes in government and business as well as individual or household efforts. Thus, it is essential to shift the systems providing basic necessities and human needs through 'co-creation' among these actors. Therefore, it is desirable for civil society, government and local businesses to share their experiences of sustainable lifestyle initiatives and to cooperate with funding sources such as ESG investment and local vocational education to stimulate social businesses that contribute to sustainable lifestyles. SCP conducted research on the current situation of social entrepreneurs that contribute to sustainable ways of living and the conditions of investment and education supporting these businesses in the cities of Canada, India and Japan, and organised workshops to explore the ideal forms of information sharing and mutual support.

SCP will take advantage of the experiences and networks developed through engagement with the One-Planet Network and SWITCH Asia programme to make further tangible contributions to the decarbonisation of cities and communities. Specifically, SCP will support the development of the climate change action plans of local governments both in Japan and abroad, facilitate co-creation between citizens and businesses, and promote education for sustainable living at communities and schools.

Mainstreaming Circular Economy

SCP continued to be involved substantially in key international processes on circular economy and resource efficiency such as G20 resource efficiency dialogue, G7 resource efficiency alliance, International Resource Panel (IRP), OECD and Global Alliance on CE and RE (GACERE).

For example, an expert from SCP served as a reviewer for OECD's Environmental Policy Review for the United Kingdom to provide recommendations to their circular economy policy. SCP acted as a main actor to synthesise relevant country information (G20 MPL report & G20 RE dialogue portal site development) and develop the G7 CERE principle. SCP also acts as a policy think-tank on CE in collaboration with PACE (Platform for Accelerating Circular Economy) under World Economic Forum, Circular Economy Sustainable Dialogue by GIZ with contribution to T20 Policy Brief as well as Sitra (Finnish innovation fund, organiser of WCEF).

Domestically in Japan, SCP was involved in several governmental committees to discuss policy measures, CE indicators, and industrial standards on circular economy including those of MOEJ, METI, NEDO, Aichi Prefecture, and Tokyo Metropolitan government. SCP is now serving as the secretariat for the Japan Partnership for Circular Economy (J4CE) and organised six public-private dialogues to increase motivation to implement circular business models in the private sector. J4CE also developed a show-case of best practices on circular business practices and presented them at COP26.

Marine Plastics and Circular Economy

For marine plastics and circular economy, SCP continued to support policy initiatives by ASEAN and ASEAN member states in particular. For example, a formal coordination processes started for developing National Action Plans in Myanmar and Cambodia to be developed and approved by national governments in Spring 2022.

ERIA RKC-MPD Technical Working Group was officially launched to support policy discussion based on research findings on plastics and circular economy. Five parallel work streams were initiated to develop knowledge products by ERIA RKC-MPD.

For better coordination of UN and other initiatives, SCP started a coordination process for several ongoing international projects on the topic led by UN organisations and bilateral aid agencies, with a pilot case in Cambodia. IGES, ERIA and OECD are now in consultation to develop the Asian version of Global Plastic Outlook as a flagship publication on policy evaluation in the long-term for ASEAN+3.

Under the Global Plastic Action Partnership Program, an initiative of the World Economic Forum, SCP began research in Viet Nam, Ghana and Indonesia, looking into how multi-stakeholder dialogue and process can facilitate actions to tackle marine plastic litter, and how to implement CE policy formulation in the context of developing countries.

Centre Collaborating with UNEP on Environmental Technologies (CCET)

IGES Centre Collaborating with UNEP on Environmental Technologies (CCET) has continued in conducting evidence-based policy research, providing technical support, technical and capacity building to national and local governments, particularly Sri Lanka (Negambo and Galle), Indonesia (Surabaya), Malaysia (Kuala Lumpur), Viet Nam (Da Nang), and Thailand (Nakhon Si Thammarat) to formulate national and sub-national action plans for managing municipal waste, including plastic waste and marine litter, healthcare and COVID-19 waste to mitigate pollution, biodiversity and climate change impacts, increase resource efficiency and circular economy.

In addition, three ASEAN cities, including Padang (Indonesia), Bago (Myanmar) and Steung Saen (Cambodia) applied the Emission Quantification Tool (EQT) that CCET as jointly developed with the

Climate and Clean Air Coalition (CCAC) to measure climate impacts including both GHGs and SLCPs and developed policy measures to mitigate open waste burning in the cities.

Viet Nam (Hoi An City) and Bhutan (Thimphu) are now using CCET's handbook on Ecological Education to build teacher capacity at primary schools, thereby integrating sustainable resource management, climate change and SDGs into formal and non-formal education systems.

CCET also started a new partnership with the Secretariat of the Basel, Rotterdam and Stockholm (BRS) Conventions to support countries, including Sri Lanka, Nepal and Cambodia to develop national plastic inventories to reduce the production and use of plastic products containing hazardous additives as well as to improve the information flow, transparency and traceability based on life cycle assessment (LCA).

Based on its scientific and practical expertise on plastic waste and marine litter, CCET also contributed to the development of the ASEAN Framework of Action on Marine Debris, Plastic Atlas Asia, eLearning Modules on Cities and Marine Plastic Pollution and eLearning Module on Waste Banks to enhance Local Circular Economy.

CCET also provided inputs to the Ministerial Meeting in September 2021 to draft a resolution for an internationally legally binding instrument on plastic pollution and actively being involved in global dialogue in developing plastic treaty as a member of Global Partnership on Marine Litter (GPML), ESCAP Closing the Loop, UNEP-Counter Measure, and UN-Habitat Waste Wise Cities.

(3) Selected publications

Peer-reviewed Article

- “Expansion of Policy Domain of Sustainable Consumption and Production (SCP): Challenges and Opportunities for Policy Design” (Sustainability)
- “COVID-19 impact on household food and plastic waste generation in Bangkok” (Sustainability)
- “Integrated Strategies for Household Food Waste reduction in Bangkok” (Sustainability)
- “Lifestyle carbon footprints and changes in lifestyles to limit global warming to 1.5 °C, and ways forward for related research” (Sustainability Science)
- “Governance for food waste prevention in Japan, Thailand, and Vietnam: Achieving the right mix” (World Food Policy)
- “Are We Missing the Opportunity of Low-Carbon Lifestyles? International Climate Policy Commitments and Demand-Side Gaps” (Sustainability)
- “SCP Policy Design for Socio-technical System Change: Envisioning-based Policy Making (EnBPM)” (Global Environmental Research)
- “Policy Development for Reconfiguring Consumption and Production Patterns in the Asian Region” (Global Environmental Research)

Policy report

- “G20 Report on Actions against Marine Plastic Litter: Third Information Sharing based on the G20 Implementation Framework”
- “New Delhi in 2030: Envisioning 1.5-Degree Lifestyles”
- “Kyoto in 2030: Envisioning 1.5-Degree Lifestyles”
- “Cape Town in 2030: Envisioning 1.5-Degree Lifestyles”
- “Nonthaburi in 2030: Envisioning 1.5-Degree Lifestyles”
- “São Paulo in 2030: Envisioning 1.5-Degree Lifestyles”
- “Yokohama in 2030: Envisioning 1.5-Degree Lifestyles”
- “2030 年横浜 1.5℃ライフスタイルのビジョン”

- “2030 年京都 1.5°C ライフスタイルのビジョン”

Policy Brief/Issue Brief

- “Envisioning 1.5-Degree Lifestyles: Policies for Low-Carbon Cities in 2030”
- “Sustainable Ways of Living Issue Brief Series”

Discussion Paper

- “Co-Creating Sustainable Ways of Living 24 Stories of On-the-Ground Innovations” (in English, Spanish, and Japanese)
- “The Global Search for Sustainable Schools Guidance Note”
- “The Global Search for Sustainable Schools Programme Synthesis Report”

<CCET>

Peer-reviewed Article

- “Source Separation in Municipal Solid Waste Management: Practical Means to Its Success in Asian Cities” (Waste Management & Research)
- “Moving from Waste to Resource Management: A Case Study of Lake Toba, Indonesia” (Waste Management & Research)
- “Micro Plastics and Potentially Toxic Elements: Potential Human Exposure Pathways through Agricultural Lands and Policy Based Countermeasures” (Microplastics)

Submission to Policy Process

- “National Action Plan on Plastic Waste Management in Sri Lanka, 2021-2030”
- “Action Plan to Manage Marine Plastic Litter in Da Nang City by 2025 with a Vision Towards 2030”
- “Action Plan to Manage Aquatic Plastic Litter in Surabaya City”
- “Closing the Loop – Kuala Lumpur Action Plan”

Policy Report

- “Greening Health Infrastructure: Rapid Assessment of policies and Practices on Health Care Waste Management in Ethiopia and Kenya”
- “Closing the Loop on Plastic Pollution in Da Nang City, Vietnam – Baseline Report”
- “Closing the Loop on Plastic Pollution in Kuala Lumpur, Malaysia – Baseline Report”
- “Closing the Loop on Plastic Pollution in Surabaya, Indonesia – Baseline Report”
- “Closing the Loop on Plastic Pollution in Nakhon Si Thammarat, Thailand – Baseline Report”
- “Plastic Atlas Asia – Japanese Version”

Book Chapter

- “Waste Management and Environmental Issues in Maldives (in Japanese)” (モルディブを知るための 35 章)

Briefing Note

- “Building a Sound Material Cycle Society: Learning from Japan”

Working Paper/non peer-reviewed article

- “Law Enforcement on Illegal Dumping and Illegal Treatment of Medical Waste in Japan”
- “Health Care Waste Management Towards the Circular Economy”
- “Bottle-to-bottle recycling can boost Sri Lanka in the transition to circularity in plastics”

Fact sheet/Data or tool/ training material

- “Ecology Note – Towards a Clean, Green and Beautiful Bhutan”
- “Estimation Tool for Greenhouse Gas (GHG) Emissions from Municipal Solid Waste (MSW) Management in a Life Cycle Perspectives (Chinese)”
- “Training Module on Guidelines for Safe Closure and Rehabilitation of Municipal Solid Waste Dumpsites in Sri Lanka”

- “Ecological Education for Schools in Hoi An – A Teacher’s Guide”

1.4. Biodiversity and Forests (BDF)

The newly-formed IGES unit on biodiversity and forests conducts problem-solving research and implementation in the Asia-Pacific region. The unit also aligns with and supports global biodiversity processes such as the Convention on Biological Diversity (CBD), the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), and the New York Declaration on Forests.

(1) Focus for Impact Generation in ISRP8 by Unit

BDF will formalise our contribution to international policy processes, including those of the CBD and the IPBES, through their official meetings and assessments. The post-2020 global biodiversity framework and New York Declaration on Forests will be key processes with which to align. BDF will also contribute to promoting sustainable forest management with guiding key legislation at the national level, as well as frameworks for assessing biodiversity and implementing subsequent measures. We will contribute to an improved understanding of how to promote sustainable socio-ecological production landscapes and seascapes (SEPLS), and to an understanding of how communities can be assisted in responding to degradation of key habitats.

(2) Major activities in FY2021

Responsible Timber Trading

BDF has been working to provide necessary information on the Clean Wood Act (CWA) of Japan. Literature reviews, trade analyses and interviews were conducted in Indonesia, Malaysia and Viet Nam. Compliance by the Japanese timber industry has also been studied through a questionnaire survey. Summaries of these studies were published on the website “Clean Wood Navi” managed by the Forestry Agency (FA). At the same time, BDF has been conducting a 2-year project funded by the International Tropical Timber Organization (ITTO) to analyse timber legality assurance systems and good practices for sustainable timber trade in China and Viet Nam. Based on the data obtained in the FA commissioned projects on timber legality in the past, BDF published a series of four research articles on timber legality and presented at several seminars. BDF was invited to make presentations twice at the Review Committee on the Distribution and Utilization of Legally Harvested Wood organised by the FA to review the Clean Wood Act. The main recommendations were finally adopted in the Interim Report published by the committee. BDF is also expanding its focus to deforestation from agriculture commodities and organised an thematic session “Zero Deforestation in Supply Chain of Imported Agricultural Commodities”.

JCM REDD+⁶

BDF supported MOEJ by providing advice for a JCM REDD+ project. The methodology of the project was approved by the Joint Committee. BDF was also invited by the FA to be a committee member to discuss JCM guidelines for afforestation and reforestation.

Contribution to International Biodiversity Processes

BDF staff began working as experts on the IPBES nexus assessment and transformative change assessment. BDF also contributed to the external review of the draft IPBES sustainable use of wild species assessment report, the draft IPBES values assessment report, and other peer-reviewed documents for IPBES, TNFD

⁶ Reduction of Emission from Deforestation and forest Degradation, and Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks

and CBD. Some of these reviews provided the opportunity to suggest relevant IGES publications for citation in the reports. BDF also contributed to disseminating information on the IPBES and CBD processes and outcomes to Japanese audiences, including through the publication of a Japanese guidebook on the IPBES-IPCC Co-sponsored Workshop Report on Biodiversity and Climate Change, and through an online public symposium on biodiversity. Finally, BDF staff have contributed a chapter to the 6th ASEAN State of Environment Report and produced a set of 100 UNEP factsheets covering 20 Asian countries and seven multilateral environmental agreements.

Advisory function to IPBES TSU

BDF continued to serve in an advisory role to the technical support unit (TSU) for the IPBES assessment on invasive alien species and their control. This TSU is hosted by IGES at the Tokyo Sustainability Forum. Its role is to coordinate the assessment and support the team of experts compiling the assessment report.

JICA Technical Cooperation Project: Development of Integrated Coastal Ecosystem Management System in the Republic of Mauritius in Mauritius

One of the BDF team was dispatched to Mauritius to respond to a heavy oil spill from the bulk carrier vessel, MV Wakashio, contributing to a JICA project as a member of an expert team in 2020. Based on the data collection survey conducted at that time, the team launched the JICA Technical Cooperation Project in January, 2022, which aims to support Mauritius in building an integrated coastal ecosystem management system to contribute to restoring the ecosystem in a resilient manner. Within that, BDF plays a role in supporting the field of ecosystem services and ecotourism. The former component of the project intends to evaluate coastal ecosystem services and visualise it to enhance the conservation and monitoring plan and practices. The latter aims to understand the current state of ecotourism in the project site and improve the quality in terms of sustainability through the introduction of a sustainable tourism standard. By doing so, it can prevent some “ecotourism” businesses from harming the coastal ecosystems, and attract sustainability-minded tourists, who have increased in recent years. The work will start being more substantially-oriented from 2022 onward.

Mainstreaming Biodiversity Conservation and Sustainable Management in SEPLS

IGES and partners supported six more projects to demonstrate the value and potential of socio-ecological production landscapes and seascapes (SEPLS) around the world. The total number of such projects since 2013 has now grown to 54. A new Satoyama Development Mechanism (SDM) website was developed to facilitate interactive information exchange between the project implementers, the SDM Secretariat and a general audience. In addition, the SDM project results were publicised in a variety of ways, including at side-events organised at the High-level Political Forum on Sustainable Development (HLPF) and ISAP2021.

Collaboration with AEON Environmental Foundation

AEON Foundation requested BDF to provide professional support for a reform process of their grant programme in the conservation sector. The total amount of the annual grant is approximately JPY 100 million. During fiscal year 2020, BDF reviewed the current practices of the grant programme, identified issues and challenges that needed to be addressed, and then proposed a list of activities to be considered under the reform process. BDF worked with AEON Environmental Foundation to strengthen the foundation’s Environment Activity Grant Programme, on the basis of a renewal plan that BDF proposed to the foundation in FY 2020. BDF also produced five case study reports on the foundation’s Satoyama restoration projects across Japan.

Sustainable Management of Commons in Socio-ecological Production Landscapes (SEPLs) in Slovenia and Japan

This bilateral research project aims to compare SEPLs in Japan and Slovenia with regards to ecosystem services and commons. Specifically, BDF has investigated potential similarities and differences in a bundle

of ecosystem services and their associated values, contextualised and localised the concept of new commons, and explored solutions for better governance strategy of SEPLs to sustain ecosystem services and bio-cultural diversity in Slovenia and Japan.

Resilience and Ecosystem Services Assessment of Cultural Landscape in Ethiopia

In the Gurage socio-ecological production landscape of Ethiopia, “Jefoure” refers to a traditional grass-covered road with households on either side. BDF conducted research to generate valuable empirical information regarding a Gurage landscape feature that is not common knowledge, and which can support decision-makers and other conservation initiatives aimed at sustainable management. Three peer-reviewed papers were published in 2021, based on the research.

Contribution to the development of a new ISO standard on biodiversity

The International Organization for Standardization (ISO) set up a new technical committee on biodiversity in 2020 and the Government of Japan decided to actively participate in the process. BDF took on the role of secretariat for a domestic mirror committee, in collaboration with Japan Standard Association (JSA). The work involved an analysis of concerned documents, a compilation of inputs from concerned organisations and experts in Japan and submission to the ISO technical committee, as well as knowledge-sharing among concerned stakeholders and the public.

Business and biodiversity

IGES became a Forum member of the Taskforce on Nature-related Financial Disclosures (TNFD). Relating to this, BDF worked with the Ministry of the Environment, Japan and others to promote business engagement in this process. BDF also started working with the Keidanren Committee on Nature Conservation (KCNC) to promote company engagement.

Integration of Traditional and Modern Bioproduction System for a Sustainable and Resilient Future under Climate and Ecosystem Changes (ITMoB)

The ITMoB project, a 3-year cooperative research project, aims to explore scenarios/pathways for a sustainable and resilient future under climate and ecosystem changes by assessing various ecosystem services provided by the bioproduction systems under multiple future scenarios. The project focuses on integration of traditional and modern bioproduction systems such as home gardens, agroforestry, plantation, aquaculture and urban agriculture in Japan, the Philippines and Indonesia. In FY2021, the project began with a kick-off workshop, international conferences, training seminars, stakeholder meetings, and field surveys.

Abandonment and rebound: Societal views on landscape and land-use change and their impacts on water and soils (ABRESO)

The overarching goal of the ABRESO project is to develop a global transdisciplinary platform. It is envisioned as a network of people, sites, tools and ideas, for understanding the impacts of land abandonment on sustainability of soil and water resources. Land abandonment and subsequent land use or land cover change can have profound implications for water resources, as the changing fabric of the Critical Zone (CZ) dictates changes in infiltration, runoff and the delivery of sediment and nitrogen to groundwater and surface waters. In FY2021, the project began with a kick-off workshop, training seminars, stakeholder meetings and preliminary field surveys.

Designing sustainable future scenarios through multiple value criteria

This project aims to develop a new system for local evaluation and build local future scenarios to explore local sustainability at three research sites in Japan. In FY2021, BDF conducted preliminary field surveys to design future scenarios and quantify the value of subsistence food production (self-production and gifts from others) that is exchanged without market transaction.

(3) Selected publications

- Policy Brief “Strengthening agricultural certification schemes by adding criteria on forest restoration”
- Peer-reviewed Article “The effect of agricultural certification schemes on biodiversity loss in the tropics” (Biological Conservation)
- Policy Report “生物多様性と気候変動 IPBES-IPCC 合同ワークショップ報告書：IGES による翻訳と解説”
- Proceedings “Landscape approach for biodiversity, climate change and sustainable development co-benefits”
- Peer-reviewed Article “Diverse values of urban-to-rural migration: A case study of Hokuto City, Japan” (Journal of Rural Studies)
- Issue Brief “Mobilising private finance for biodiversity”
- Briefing Note “IPBES 第 8 回総会の概要と今後の展望”
- Article “Contribution of the Satoyama Initiative to implementing the post-2020 Global Biodiversity Framework and developing Circulating and Ecological Economies” (Japan Environment Quarterly)
- Article “ドイツとオーストラリアにおける政府の違法伐採対策法の運用” (木材情報)
- Article “持続可能性の確保に貢献する輸入木材の合法性確認はどうあるべきか？—パプアニューギニアとタイの事例に基づく検討— ” (木材情報)

1.5. Adaptation and Water Area (AW)

To contribute to the realisation of a resilient and sustainable society, particularly in the Asia-Pacific region, AW will promote initiatives focusing on climate change adaptation and water environment measures. For climate change adaptation, AW will actively participate in international negotiations and policy processes and make policy proposals. AW will keep abreast of global efforts on adaptation and identifying international policy needs. Based on the findings, AW will work on priority issues on adaptation, including promotion of AP-PLAT, research on the integration of adaptation measures with disaster prevention, mitigation measures, and biodiversity conservation, and work on locally-led adaptation (LLA) and transboundary adaptation. Regarding water environment measures, AW will actively promote WEPA's efforts as its secretariat to improve water environment governance in the Asia-Pacific region, as well as projects to promote the deployment and proper management of decentralized wastewater treatment systems and address the issue of microplastics in rivers.

(1) Focus for Impact Generation in ISRP8 by Unit

AW will work closely with BRC for the successful full-fledged operation of AP-PLAT's capacity-building programme. For that purpose, we will keep strengthening the partnership with capacity building institutions and international initiatives in Asia and identifying the opportunities of collaborative works, promoting basic studies and developing adaptation tools and materials to lay down the foundation of the programme, and engaging in concrete capacity-building efforts, among others. AW will keep working on critical research and projects on adaptation, including monitoring and evaluation, ILK, Ecosystem-based Adaptation (EbA), transboundary adaptation, PWLM/PCLM, socio-hydrology, DRR-CCA integration, and compound risks. In addition, we will continue to contribute to international efforts on adaptation, including UNFCCC, IPCC, Paris Committee on Capacity-building (PCCB), PEMSEA, The Himalayan University Consortium (HUC), APAN Forum, and the Adaptation Without Borders Initiative (AWBI). AW will maintain its secretariat service for WEPA to achieve better water environmental governance in

Asia. We also plan to work closely with ASEAN Secretariat and international partners to further promote a decentralised wastewater management approach in ASEAN countries and utilise this approach to address the challenge of emerging pollutants such as microplastics. It is expected that CES will become an institution-wide programme building on efforts for Nexus among others.

(2) Major activities in FY2021

Development of AP-PLAT Capacity Development Contents

AW, which leads the capacity development component of the Asia-Pacific Climate Change Adaptation Information Platform (AP-PLAT), in collaboration with relevant organisations, produced six e-learning courses on topics such as “Building resilience to compound and cascading disaster risks”, “Nature-based Solutions (NbS)”, and “Utilize a climate projection tool for the adaptation planning”, along with the capacity development section of the AP-PLAT website.

Contribution to International Climate Change Adaptation Processes

The international discussion on climate change adaptation has become increasingly active in recent years. IGES participates as a member of the Japanese government delegation to meetings held under the UN Framework Convention on Climate Change (UNFCCC) and provides support for international negotiations related to adaptation; at the 56th Subsidiary Body in June 2022, AW supported the Ministry of the Environment and engaged in negotiations on Global Goal on Adaptation. AW also has been following such activities including high-level dialogues and the relevant organisations on individual key themes (disaster management, ecosystem, food systems, etc.), with a particular focus on related initiatives led by the UK as COP26 President. Through following international trends on adaptation and their development, AW made recommendations to the Ministry of the Environment on the future contribution of Japan in the field of adaptation.

Synergy between climate change mitigation and adaptation

As part of the IGES-led research project on Synergies between Climate Change Mitigation and Adaptation (1CN-2206: Environment Research and Technology Development Fund), AW leads the implementation of sub-theme 3 "research on transition strategies for promotion of renewable energy and harmonious adaptation toward climate neutrality." The research aims to make recommendations on transition strategies for adaptation that harmonize with the transition to carbon neutrality, centered on renewable energy, concerning key adaptation and industrial sectors in major ASEAN countries.

Pilot on Participatory Watershed Management

IGES and partners have been helping local governments in the Philippines develop more resilient land-use and climate change action plans through a scenario analysis and impact assessment process. In FY2021, AW prepared adaptation funding proposals for two cities (Santa Rosa City and Calapan City) to submit to the Philippine "People's Survival Fund" for implementation of priority adaptation measures. AW also conducted a national-scale analysis of future coastal flooding in the Philippines, and found that an additional 2.5–5.8 million urban residents will be exposed to coastal flooding by 2050 if current urban growth patterns continue. (Johnson et al., 2021).

Socio-hydrological perspective of climate change adaptation: Comparative study in large riverine islands in India, Bangladesh and Viet Nam

Amidst rapid global changes and the unfavourable environmental conditions they induce, communities in isolated riverine islands are affected due to their poor adaptive capacities. Among their main vulnerabilities are their water resources. Using a socio-hydrological approach, AW explored how the nexus of human

well-being and water relations can be applied to improve adaptive measures to maintain hydrological cycles along with managing local water needs. This is a three-year project. In FY2021, socio-hydrological models were used to quantify feedbacks between water resources and communities at multiple scales with the aim of expediting stakeholder participation for the sustainable management of those resources. AW published 10 peer reviewed journal articles, two book chapters, one conference proceedings under this project. The APN secretariat was very impressed with AW's outstanding project outputs. Based on these outputs and experience, AW is scaling up this research idea by writing a new proposal. AW organised project meetings, stakeholder meetings etc. to present research outputs and a way forward.

Plausible Alternative Futures of Island Mangroves in the Asia-Pacific Region

AW explored future scenarios of mangroves in six island locations in Asia. Using the state of art advanced bio-geophysical modelling, the project mapped likely changes in vital ecosystem services of mangroves, namely storm surge protection, sediment retention, carbon capture and storage and nutrient recycling. The project also delivered spatial planning guidelines to optimise future land use in selected study areas using field-based stakeholder workshops.

Locally Led Adaptation (LLA)

AW has increased engagements on Locally Led Adaptation (LLA), which has been receiving increased attention since the 2021 Climate Summit, and especially after the Global Commission on Adaptation launched eight Principles on LLA. In this context, AW and APN jointly started a project on developing a model case of Locally Led Adaptation (LLA) as a direct contribution to the AP-PLAT capacity-building pillar covering South Asia, South East Asia and Pacific. AW and APN co-organised a session on "Localization of NDCs through community-led "adaptation innovation" in the Asia-Pacific region: Needs and pathways" at the Gobeshona Global Conference on LLA on 31st March. In the meantime, AW is exploring possibilities of regional partnership with renowned international initiatives and institutions such as Global Center on Adaptation (GCA)'s 's Global Hub on LLA, Submitted Proposal to Canada-UK programme CLARE, and initiated discussion on developing JAIF project.

Addressing transboundary climate change risks

AW's work on transboundary climate change risks (TBRs) has been carried out under NIES-IGES Suishinhi project, JSPS-ICSSR project, and IGES SRF projects mainly in collaboration with the Adaptation Without Boundaries (AWB) initiative, and several national partners in South and Southeast Asia. During 2021-2022, AW developed a project proposal in collaboration with SEI, AIT, ADPC, UNESCAP, KY, IDDRI and UKM on developing a regional adaptation plan for the Southeast Asian countries. AW also took the lead in drafting a chapter on global supply chains showcasing how supply chains are making local risks global and suggesting ways to mitigate the TBRs in the context of supply chains, for the EU DG CLIMA Flagship report on transboundary climate change risks. AW already received an expression of interest to engage in the subsequent flagship report. Furthermore, upon the invitation of ADB, a presentation on how ASEAN member states can mitigate TBRs through regional collaboration was delivered at the Annual Meeting of the Greater Mekong Subregion (GMS) Working Group on Agriculture (WGA), in June 2022, Ho Chi Minh City, Viet Nam. Upon invitation, AW presented a paper on transboundary climate change risks at the international conference on climate change (May 2022, Dhaka, Bangladesh) and this paper will be developed into a chapter for a forthcoming book.

A peer-reviewed journal article on regional droughts and implications for drought forecasting and early warning was also submitted. AW conducted a series of interviews with professionals engaged with the Official Development Assistance (ODA) and industry experts on TBRs and the outcome will be used to develop a structured survey questionnaire. A collection of case studies is being put together to showcase the TBRs in different risk transmission pathways to be finalised during 2022-23.

Collaboration with PEMSEA

IGES has been collaborating with the Environmental Management for the Seas of East Asia (PEMSEA) since 2020 as the Regional Center of Excellence (RCoE) in Climate Change Adaptation and Disaster Risk Reduction, as well as actively engaging in activities in PEMSEA Network of Learning Centers. AW and PEMSEA have jointly been awarded a microgrant from the Adaptation Research Alliance, a network promoting action research in the field of adaptation. A pilot workshop was held in Guimaras, a coastal region in the Philippines, to contribute to the development of a local adaptation pathway.

Water Environmental Management in Asia

As secretariat for the Water Environment Partnership in Asia (WEPA), AW has been contributing to the improvement of the water environment in Asian countries for over a decade. In FY2021, the WEPA annual meeting was conducted as a video conference with the participation of government officials from 13 countries. In addition, AW supported WEPA Action Programs in Cambodia and Myanmar, and Lao PDR in order to promote concrete actions for improving water governance in each country.

Establishment of Environmental Conservation Platform of Tonle Sap Lake

AW, in collaboration with Tokyo Institute of Technology, Institute of Technology of Cambodia and Yamagata University, successfully completed the implementation of a 6-year SATREPS project (April 2016 – March 2022) funded by the Japan International Cooperation Agency (JICA) and Japan Science and Technology Agency (JST) on establishing environmental conservation platform of Tonle Sap Lake in Cambodia, the largest inland water body in Southeast Asia. The research team worked with the Institute of Technology of Cambodia and relevant partners in both Japan and Cambodia to (i) establish a solid research-oriented structure and facilities at the Institute of Technology of Cambodia; (ii) encourage science-based management by the Government of Cambodia; and (iii) enhance the Tonle Sap Water Environmental Platform (TSWEP) to become an international hub of freshwater ecology and management in Southeast Asia. IGES team has also taken a lead in producing two policy reports entitled: “Environmental Changes in Tonle Sap Lake and its Floodplain: Status and Policy Recommendations” and “Sustainable and Resilient Tonle Sap Lake: A Progressive Scenario for Policy Action” accordingly, which reflected major findings from the project into key policy messages and guidance for decision-makers in Cambodia.

Strengthening Capacity Development for Local Governments in ASEAN to Tackle Microplastics and Water Pollution through Decentralised Domestic Wastewater

Enormous progress has been made in 10 ASEAN Member States (“AMSs”) over the last two decades in improving the ratio of households with access to improved sanitation facilities like septic tanks. However, sanitation is not just about toilets. It is essential to consider the whole sanitation service chain, including how to safely manage, treat, dispose and reuse treated wastewater and sludge, either on-site or off-site; using either a centralised or decentralised system. Under a new initiative funded by the Japan - ASEAN Integration Fund, AW is currently working closely with ASEAN Secretariat and AMSs to facilitate the establishment of a regional platform for strengthening of scientific and practical knowledge exchange, policy dialogues and capacity development for local governments and relevant multi-stakeholders in ASEAN countries on decentralised wastewater management, which will gradually contribute towards the achievement of relevant targets under SDG 6 on water and sanitation by 2030. Based on the results of a multi-benefit “SDG6 Model City” pilot project in an ASEAN city, a practical “Regional Guidebook on Sustainable Decentralised Domestic Wastewater Management for ASEAN Resilient and Green Cities” will be developed, which is expected to trigger a comprehensive transformation of the domestic wastewater sector in ASEAN countries on multiple levels.

Riverine Microplastic Pollution in ASEAN Countries – An Investigation on the Current State of Knowledge

Water pollution caused by microplastics generated from land-based sources (e.g. as tire-wear particles, broken road markings, synthetic textile microfiber from washing, microbeads from personal care products, discharged domestic wastewater from households, and others) is attracting attention in many countries and regions around the world as an emerging environmental problem, not only at national, regional, but also global level. Microplastics released from these sources often flow directly or indirectly into surrounding aquatic environments such as river and lake and eventually enter the ocean. Adverse impacts of microplastics on ecosystems and aquaculture organisms have been well-reported; it may gradually cause potential adverse effects on human health. Unfortunately, in most of AMSs, basic knowledge about the occurrence, ingestion and impacts of riverine microplastics pollution on ecosystem and human health is very limited. As a result, appropriate and effective countermeasures to control the emission of microplastics have not yet been established. Results from the AW study conducted in FY2021 in a number of selected ASEAN countries, including Indonesia, Philippines and Vietnam, presents a concise and insightful picture on the current state of knowledge on the occurrence, ingestion, and impacts of microplastics on ecosystems and human health. The study calls for collective efforts from all the ASEAN Member States to address the issues along the plastic value chain through the circular economy approach, from raw material extraction, design, production, distribution, responsible plastic consumption (especially single use plastic products), collection/reuse/repair, to the recycling and final disposal stage.

(3) Selected publications

- Peer-reviewed Article “High-resolution urban change modeling and flood exposure estimation at a national scale using open geospatial data: A case study of the Philippines” (Computers, Environment and Urban Systems)
- Peer-reviewed Article “A review and meta-analysis of generative adversarial networks and their applications in remote sensing” (International Journal of Applied Earth Observation and Geoinformation)
- Peer-reviewed Article “Microplastics in freshwater environment in Asia: A systematic scientific review” (Water)
- Discussion Paper “Riverine Microplastic Pollution in ASEAN Countries - Current State of Knowledge”
- Peer-reviewed Article “Vulnerability and risk assessment to climate change in Sagar island, India” (Water)
- Submission to Policy Process “ACTION PLAN TO MANAGE MARINE PLASTIC LITTER IN DA NANG CITY BY 2025, WITH A VISION TOWARDS 2030”
- Policy Report “Closing the Loop on Plastic Pollution in Da Nang City, Vietnam - Baseline Report” (2 versions, one in English and one in Vietnamese)
- Peer-reviewed Article “Exploring indigenous and local knowledge and practices (ILKPs) in traditional jhum cultivation for localizing sustainable development goals (SDGs): a case study from Zunheboto district of Nagaland, India” (Environmental Management)
- Peer-reviewed Article “Residents’ place attachment to urban green spaces in Greater Tokyo region: An empirical assessment of dimensionality and influencing socio-demographic factors” (Urban Forestry & Urban Greening)
- Peer-reviewed Article “Strengthening external emergency assistance for managing extreme events, systemic, and transboundary risks in Asia” (Politics and Governance)
- Proceedings “Workshop Report: Building Resilience to the Risk of Compound and Cascading Disasters in the Context of Climate Change”
- Issue Brief “Sustainable and Resilient Tonle Sap Lake: A Progressive Scenario for Policy Action”
- Book Chapter “Debris Flood Triggered by Cascading Hazard Phenomenon along Melamchi and Indrawati River Basins, Nepal” (In: SCOPING STUDY ON COMPOUND, CASCADING AND SYSTEMIC RISKS IN THE ASIA PACIFIC)

- Peer-reviewed Article “A succinct review and analysis of drivers and impacts of agricultural land transformations in Asia” (Land Use Policy)
- Peer-reviewed Article “Strengthening external emergency assistance for managing extreme events, systemic, and transboundary risks in Asia” (Politics and Governance)
- Policy Report “WEPA Outlook on Water Environmental Management in Asia 2021”

2. Three Taskforces

2.1. Business Taskforce (BIZ)

BIZ has continued its activities to generate outcomes and impacts by supporting highly motivated businesses in Japan, specifically targeting the promotion of climate change and decarbonisation policies in businesses in Japan.

(1) Focus for Impact Generation in ISRP8 by Unit

BIZ will continue activities to exert influence on Japan’s Energy Mix Policy, more ambitious NDC for UNFCCC Conference of the Parties (COP), and to support adaption of carbon pricing in Japan. To create impact through the business sector, we will continue to work on increasing progressive companies as the Japan Climate Leaders’ Partnership (JCLP) members and to expand the needs of renewable energy through growing the size of RE100⁷/RE Action⁸ membership. In addition, we will support companies in its decarbonisation in areas beyond renewable energy towards achieving net zero by 2050.

(2) Major activities in FY2021

BIZ has been appointed as the Secretariat of Japan Climate Leaders' Partnership (JCLP), a coalition of business in Japan, and has supported progressive companies to lead a positive momentum towards net zero in business and to contribute to the progress of climate policies in Japan⁹.

Empowering business coalition

JCLP has continued to expand in FY2021 and its membership increased from 189 to 216. In FY2021, JCLP appointed three new Co-Chairs (i.e. (1) Yoshinori Yamashita, CEO of Ricoh Company, Ltd., (2) Masanori Imai, Chair of Toda Corporation, and (3) Masato Iwasaki, one of the representative directors at Takeda Pharmaceutical Company Limited, as well as a special advisor (Tadamori Oshima, former speaker of the House of Representative of Japan).

⁷ International business initiative committed to 100% renewable power, working to massively increase corporate demand for and delivery of renewable energy

⁸ A new initiative in Japan for small and medium enterprises (SMEs), educational institutions, medical institutions, and local governments to declare switching to 100% renewable electricity by 2050.

⁹ Since 2012, IGES has been appointed by JCLP as its Secretariat.

Decarbonisation of business practices

JCLP cooperated with Climate Group to support the participation of Japanese companies in RE100, EV100¹⁰, and EP100¹¹. The number of RE100 companies has increased by 16 in one year. The total volume of electricity use¹² is about 5.3% of total electricity demand in Japan.

JCLP, IGES, ICLEI, Green Purchasing Network (GPN) and Japan Network for Climate Change Actions (JNCCA) have been running the steering committee of “RE Action”, an initiative for SMEs, municipalities, educational institutions and medical institutions, to declare their commitment to 100% renewable electricity by 2050. In FY2021, RE Action expanded its membership from 151 to 269. JCLP and RE Action jointly organised a networking event aimed at encouraging business collaboration between the demand side and the supply side in terms of renewable electricity use.

Policy engagement

JCLP has been committed to active policy engagement with the support of BIZ, which is the Secretariat of JCLP. JCLP made four policy proposals in FY2021. Among others, one of the biggest impacts achieved in FY2021 was that JCLP’s executives held a dialogue with the Prime Minister Kishida (press release). JCLP submitted a statement to the prime minister in person urging him that the Grand Design of the Prime Minister’s vision should be drawn up in line with the 1.5°C target, enables faster expansion of renewable energy, and introduces a carbon tax or emissions trading system. Prime Minister Fumio Kishida gave the coalition some strong words of encouragement, stating, “The statement is duly received and I hope that JCLP will continue to cooperate with the government in public engagement and other areas of action.”. The event was covered by various media. (Asahi, 環境ビジネス etc.)

Furthermore, JCLP participated in the following meetings and committees to encourage progress of domestic and international climate policy.

- the UNSG’s Expert Group to develop stronger and clearer standards for net-zero emissions pledges by non-State entities.
- LDP’s Research Commission on Environment and Global Warming Countermeasures (環境・温暖化対策調査会)
- “Expert Panel on Climate Change” at the Cabinet Secretariat
- “中央環境審議会 総合政策部会” at MOEJ
- 炭素中立型経済社会変革小委員会” at MOEJ
- 中央環境審議会 地球環境部会 中長期の気候変動対策検討小委員会” at MOEJ
- “カーボンプライシングの活用に関する小委員会”

(3) Selected publications

- Book “Corporate Management for Decarbonisation” (Nikkei Publishing, in Japanese)

¹⁰ International business initiative aims to drive the transition to electro-mobility.

¹¹ International business initiative pledged to double the energy productivity of businesses.

¹² Reference figures including overseas offices.

2.2. City Taskforce (CTY)

CTY co-creates solutions and promotes policies and strategies for low-carbon/carbon neutral, resilient and sustainable societies with stakeholders in Asian cities, including those in Japan. In collaboration with other regional and international organisations and networks, IGES facilitates the sharing of solutions and strategies among like-minded cities, and contributes to enhancing implementation capacity at the city level.

(1) Focus for Impact Generation in ISRP8 by Unit

Aiming to encourage more cities to become carbon-neutral, resilient and sustainable, and to ensure credible policy planning and implementation of cities, we will continue to work closely with local and regional governments in Japan and overseas. It aims to provide necessary knowledge support, including methodologies in policymaking and implementation developed through scientific interpretation on the good practices of cities, especially those of Japanese local governments. To this end, CTY will work in close partnership with international organisations and city networks such as UNESCAP, UN-Habitat, ICLEI, and United Cities and Local Governments (UCLG). City-to-city collaboration and mutual learning is one of the core approaches CTY will take. Cross-unit collaboration within IGES will be strengthened more in the 8th Phase to address diverse and complex sustainability challenges of cities.

CTY will keep two main topics of its activities/research from the 7th Phase, namely climate change and the SDGs. Since more cities are now aiming for carbon neutrality by 2050, we will conduct research and activities that aims to provide policy support and capacity of local governments to address climate issues. SDG localisation also continues to be a priority topic. Through promoting mutual learning on localisation mainly through VLR, we will provide necessary capacity development support with our analysis of good practices on the integration of the SDGs in existing policy frameworks and governance, partnership building, and monitoring and evaluation systems. Specific SDGs will be addressed based on the needs of cities and the availability of external funds (e.g. waste, mobility, urban planning, etc.).

(2) Major activities in FY2021

Supporting SDG Localisation through Voluntary Local Reviews (VLRs)

In FY2018, CTY supported three Japanese municipalities, namely Shimokawa Town (Hokkaido), Toyama City, and Kitakyushu City to produce the Voluntary Local Review (VLR) reports that were the first VLRs in the world together with the VLR of New York City. In FY2019, CTY supported the VLR report of the City of Hamamatsu, which the Mayor of Hamamatsu launched at an event at the SDG Summit held in New York in September 2019. IGES also published the Shimokawa Method for Voluntary Local Review (VLR) that shows practical steps for the VLR based on the experience of VLR of Shimokawa Town, as reference material for local governments interested in conducting their VLR.

CTY provides showcases for SDG actions by local governments through the “VLR Lab,” an online platform of VLR launched in March 2019 in collaboration with partner organisations including the United Cities and Local Governments Asia-Pacific (UCLG ASPAC). In June 2022, CTY published the State of the VLR 2022, the third volume of a series started in 2020 aiming to annually review the progress of the VLR movement. The report explores VLRs published in 2021 focusing on two themes - how VLRs are reflecting the ongoing COVID-19 pandemic, and how VLRs accelerate the localisation of the 2030 Agenda for Sustainable Development. The report also overviewed the four years of the VLR movement to reflect on how cities are conducting successive VLRs and the emerging different approaches that have developed since 2018.

CTY also contributed to information-sharing and capacity development through organising on-line sessions on VLRs such as at the I4C (Innovative4Cities) 2021 conference (October 2021) and the Asia Smart

City Conference organised by the City of Yokohama (October 2021), and also contributed to the Asia Pacific Mayors Academy led by the UNESCAP and UN-Habitat.

Sharing Lessons and Providing Support towards Zero-carbon Cities

CTY has been supporting city-to-city collaboration projects such as “T2KLLCS” (Tokyo to Kuala Lumpur Low Carbon System) since 2019. Under a collaborative project conducted by Tokyo and Kuala Lumpur (KL), Tokyo shared its building energy efficiency and renewable energy policy schemes and knowhow, in order to support the development of a sustainable building policy framework for KL, thereby contributing to securing the city’s own budget to conduct four energy efficiency retrofitting projects on KL’s public buildings and providing zero carbon scenarios towards 2050. This collaboration will continue and be strengthened from the next fiscal year through the participation of Saitama City. CTY contributed to promotion of zero carbon city in Japan through the Carbon Mapping Project, a commission project of MOEJ in which needs of the local governments, especially small and medium-sized local governments in the development and implementation of their zero carbon policy, in collaboration with other units at IGES, such as KUC and KRC. CTY also co-organised two side event on zero carbon cities at the Japan Pavilion at COP26 and the Zero Carbon City International Forum 2022 with the Ministry of the Environment, Japan, Office of Special Presidential Envoy for Climate, United States of America, UNFCCC Secretariat, and ICLEI in March 2022.

(3) Selected publications

- Peer-reviewed Article “Demand-side solutions to climate change mitigation consistent with high levels of wellbeing” (Nature Climate Change)
- Peer-reviewed Article “The impact of high-speed rail on the trajectories of shrinking cities: the case of the extension of the Shinkansen network in northern Japan” (International Planning Studies)
- Peer-reviewed Article “Integrating the Sustainable Development Goals (SDGs) into Urban Climate Plans in the UK and Japan: A Text Analysis” (Climate)
- Peer-reviewed Article “Analysis the long-term impact of low carbon transport policy in Jakarta City” (Journal Asian Research Policy)
- Research Report “State of the Voluntary Local Reviews 2022: Overcoming Barriers to Implementation”
- Discussion Paper “The role of municipalities in the renovation wave for improving energy performance in buildings”

2.3. Finance Taskforce (FIN)

Delivering on the SDGs and commitments under the Paris Agreement requires mobilising and shifting large amounts of public and private capital. To achieve low-carbon and climate resilient sustainable development, FIN is engaged in policy research and recommendations as well as capacity building. Specific areas of focus are sustainable finance (e.g. ESG investment), financial disclosure on sustainability, responses to business opportunities, and positive impact.

(1) Focus for Impact Generation in ISRP8 by Unit

FIN intends to provide practical solutions to generate impacts in the following three areas: (1) actual environmental benefits or impacts by green and sustainable finance, (2) shifting financial flows to decarbonised efforts in Japan, and (3) mobilising finance contributing to the SDGs at the local and regional level (implemented, for example, through Regional-CES) in both Japan and the wider Asia Pacific region.

(2) Major activities in FY2021

Green Bond Knowledge Platform

FIN has been engaged in commissioned work on green bonds from the Ministry of the Environment of Japan (MOEJ) since April 2017. In FY2021, FIN carried out the following activities related to MOEJ's policies on green financial products.

(1) Contribution to the revision of the Guidelines for Green Bonds, etc.: In July 2022, MOEJ released the "Green Bond and Sustainability-Linked Bond Guidelines" and "Green Loan and Sustainability-Linked Loan Guidelines". FIN contributed to the development and revision of these guidelines in various ways, including providing input to MOEJ and the Green Finance Committee that was established to develop and revise the guidelines¹³. Specifically, FIN made materials mainly on trends in the International Capital Markets Association's (ICMA) Green Bond Principles and the Loan Market Association's (LMA) Green Loan Principles and reported to MOEJ on points that should be considered for revision in the guidelines. These Principles are the international de facto standards for green financial products. Many of these points have been reflected in the Guidelines. In addition, FIN acted as a bridge between MOEJ and the ICMA and the LMA, received comments on the draft guidelines, and exchanged opinions as appropriate.

(2) Dissemination of information through the website "Green Finance Portal": Since 2018, FIN has served as part of the secretariat of the MOEJ website "Green Finance Portal" and has disseminated information on international market trends, the ICMA and LMA trends mentioned above, and good practices of overseas green financial products. In FY2021, FIN has worked to enhance this information and introduce overseas examples of green financial products in areas (e.g., biodiversity) where proceeds have not been allocated in Japan, in an effort to broaden the sector of green financial products in the domestic market.

Sustainable Finance

In order to mobilise the huge amount of funding required to implement the SDGs, it is essential to build sustainable financial systems in which the financial sector, including banks, investors and other service providers, will shift finance and investments to greener and more sustainable options. For example, the EU has taken the lead, developing the EU Action Plan on Sustainable Finance in March 2018. In Japan, the Expert Panel on Sustainable Finance, established under the Financial Services Agency (FSA), produced and issued a report to clarify the most up-to-date thinking on key aspects of sustainable finance policy. IGES has been following such global and domestic trends on sustainable finance. In FY2020, FIN focused on mainly two areas in sustainable finance:

(1) Strategic Partnership to Implement the Paris Agreement (SPIPA): Japan-EU Policy Dialogue on Climate Change: FIN, together with the EU Delegation in Japan, hosted a webinar on the practical implications of EU/Japan sustainable finance policy developments on EU/Japan financial institutions and industry. Furthermore, taking into consideration the important role regional financial institutions, namely regional banks, are expected to play in Japan, another webinar was held to present sustainable finance practices by a leading bank in the EU. Finally, FIN continued to produce periodic issue briefs on sustainable finance policy developments in Japan, such as those lead by the Financial Services Agency, MOEJ and the Ministry of Economy, Trade and Industry (METI). These issue briefs are in English and are aimed at non-Japanese stakeholders, with the intent to provide fundamental information for effective engagement.

¹³ In 2022, Sustainability-Linked Bond Guidelines were newly established. Others, (Green Bond Guidelines and Green Loan and Sustainability-Linked Loan Guidelines) were revised.

(2) Regional ESG finance: FIN collected and consolidated information on ESG good practices by local banks, in order to identify challenges and opportunities to enhance ESG finance at the local level, under commissioned work by MOEJ. FIN continued its work on initiatives and activities aimed to promote ESG regional finance, such as how to integrate ESG finance into the SDGs certification system in Kitakyushu, and on how to assess and report on impact on SDGs by local banks including Shiga Bank, which promotes ESG finance for local environmental conservation and decarbonisation efforts by companies.

Green & Low carbon technology transfer between Middle East & North Africa and Japan

FIN explored the need and feasibility through SRF to foster Japan-Middle East and North Africa (MENA) cooperation toward green economies. This research work was initiated in a partnership with the Islamic Development Bank (IsDB -Multilateral Development Bank) and the Gulf Research Center (GRC: Think Tank), targeting Saudi Arabia, Egypt and Tunisia. Building on the findings and acknowledging the uniqueness of such cooperation, the urgency of action and the momentum, IGES, IsDB and GRC agreed to continue their collaboration and proceeded with practical steps toward establishing a Japan-MENA Business Matching Platform to facilitate green and low-carbon technology transfer.

(3) Selected publications

- Policy Report “インパクトレポーティングの現状・課題と提言 —日本のグリーンボンドの再エネセクターを事例に—”
- Data/Tool “Current Status, Issues and Recommendations on Impact Reporting -A Case Study of Green Bonds for Renewable Energy Sector in Japan- English Summary”
- Briefing Note “COP26 で注目された民間金融の動向”
- Issue Brief “Japan Sustainable Finance Policy Update June 2021 – September 2021”
- Issue Brief “Japan Sustainable Finance Policy Update October 2021 – January 2022”
- Issue Brief “Japan Sustainable Finance Policy Update February 2022 – April 2022”
- Book “経営の必須知識 ESGがよくわかる本” (Shuwa System, in Japanese)
- Issue Brief “Mobilizing Private Finance for Biodiversity”
- Commissioned Report “令和3年度グリーンファイナンスに係るイノベーション動向調査等委託業務報告書”

3. Five Satellite Offices and IPBES-TSU-IAS

3.1. Kansai Research Centre (KRC)

The Kansai Research Centre (KRC) carries out research focusing on actions taken by the private sector, including businesses that promote environmental and energy-conservation measures, under the theme of "Business and the Environment". Specifically, KRC conducts analysis on corporate environmental behaviours in cooperation with case study countries and local governments, and develops policy recommendations for specific strategies to promote sustainable business practices in Asia by promoting the application of low-carbon and co-benefit technologies to developing countries through research on environmental and energy-saving technologies of businesses.

(1) Focus for Impact Generation in ISRP8 by Unit

KRC will continue promoting technology transfer in India, Thailand and other countries where opportunities arise. Activities in India are expanding to the areas of pollution management focusing on air pollution caused by thermal power plants and energy-intensive industries, whereas the focus in Thailand is on energy saving of industries and buildings in association with the Japan Platform for Redesign:

Sustainable Infrastructure (JPRSI). Collaboration with Hyogo Prefecture is expanding as well, ranging from designing a woody biomass utilisation business model in Hokusetsu region, supporting cities pledged to be carbon neutral by 2050, to designing a decarbonising road map, matching private companies with service providers of renewable energy power purchase agreement (PPA), and promoting decarbonised society development among university and high school students.

(2) Major activities in FY2021

Low-carbon/Environmental Technology Transfer in India

KRC has been promoting technology transfer of Japanese low-carbon technologies (LCTs) to Indian companies through the Japan-India Technology Matchmaking Platform (JITMAP), which was launched in 2016 with The Energy and Resources Institute (TERI) with support from MOEJ. From FY2021, activities have been extended to environmental technologies such as air pollution management. In November 2021, a webinar on 'Training of Trainers on Japanese Low Carbon Technology (Steam Management Systems) for energy auditors, managers, and Indian industries' was organised, and in December 2021, a webinar on 'Japan-India Partnership on Air Pollution Control Measures for Industrial Sector in India' was held. In February 2022, a webinar was organised on 'Japan-India Partnership towards Net Zero Society - Outcomes, Lessons Learned and Way forward of JITMAP'.

In addition, a survey was conducted to identify needs for Japanese technologies in the foundry and textile sectors, which identified moulding machines for foundries and automatic weaving machines for textiles as potentially applicable Japanese technologies. An online consultation meeting was held in May 2022 with the participation of relevant government agencies, industry associations and Indian firms in the sectors, with the aim of sharing the results of this survey with Indian stakeholders as well as discussing opportunities and barriers to the introduction of the technologies.

Japan Platform for Redesign: Sustainable Infrastructure (JPRSI) works

MOEJ has launched the Japan Platform for Redesign: Sustainable Infrastructure (JPRSI) to promote the overseas expansion of high-quality environmental infrastructure. In FY2021 KRC was in charge of building a network of local human resources and identifying environmental infrastructure development projects through inter-city cooperation projects.

Regional Circular and Ecological Sphere Model Project in Hokusetsu Region

The Hokusetsu Satoyama Regional-CES Project is an initiative aimed at revitalising the local economy by effectively utilising local resources for the Hokusetsu area (Takarazuka City, Kawanishi City, Inagawa Town, Sanda City) in Hyogo Prefecture. Aiming to form a business model in which approximately 2,000 tonnes of timber is logged annually and converted into chips for heat, KRC contributed to launch a regional energy company that provides sales and maintenance services for wood chip boilers in FY2021.

Contribution to Hyogo Prefecture's Environmental Policy

The active participation of local governments and non-governmental actors is essential to realising a long-term decarbonised society, which requires coordinated governance at various levels. KRC implemented the Hyogo RE100 Project and the Hyogo Zero Carbon Industry Study Group Project with the aim of contributing to the environmental policy of Hyogo Prefecture. The Hyogo RE100 Project collected basic information on energy consumers in the industrial and business sectors, and provided stakeholders with strategic information and ideas for the effective promotion of renewable energy, while stimulating discussion and action, and considering effective policy options for a decarbonised society at the prefectural level. The Hyogo Zero Carbon Industry Study Group project exchanged information on efforts to

decarbonise the industrial sector and discussed future directions, with large companies in the steel industry and other carbon intensive sectors as members.

Collaborative Lecture Course on Decarbonised Society at Kobe University

In collaboration with Kobe University's Econo-Legal Studies (ELS) programme, KRC held a series of lectures on carbon-free society in 2021. The lectures covered UNFCCC, national initiatives under the Paris Agreement, energy policy, carbon pricing, initiatives by private companies and financial institutions, local governments and regional energy companies, and discussed the legal systems and socio-economic mechanisms necessary for the formation of a decarbonised society. In the second half of the year, the workshop was continued by those who wished to attend, and messages from the participants were compiled for the decarbonisation of Kobe University and the promotion of decarbonisation in collaboration with Kobe City and other municipalities and local communities.

Support for Hyogo High School Environmental / Future Leader Development Project

KRC planned, drafted and moderated the five-day 'Hyogo High School Environmental and Future Leaders Development Project' organised by Hyogo Prefecture and the Hyogo Environmental Advancement Association. The theme was 'Climate Change Countermeasures and Realisation of a Carbon-free Society', and the first two days consisted of understanding the reality of climate change, its impact on the economy, society and the environment, countermeasures in each country, local initiatives, etc. The third and fourth days consisted of creating a draft message as high school students. On the fifth day, they presented their results in front of the head of the prefectural environmental department and the media. A total of 39 participants from 14 schools in the prefecture took part, and in the final session they were divided into nine groups and presented their messages to society on a wide range of topics, including food loss prevention, sustainable waste disposal and the promotion of meat alternatives.

(3) Selected publications

- Discussion Paper “事業所への太陽光発電導入障壁と非 FIT 時代における導入促進施策：兵庫県内事業者への調査と先進事例からの考察”
- PR Material “Promoting clean, high-efficiency Japanese technologies and practices in Indian industries -Success Stories and Scope for Scaling Up-”
- Data/Tool “これからの事業存続のために知っておきたい再生可能エネルギー活用のためのキーワード (Ver.2)”

3.2. Kitakyushu Urban Centre (KUC)

The Kitakyushu Office was established in 1999 in the City of Kitakyushu, which made the transition from a city known for pollution to an environmentally- advanced city. Kitakyushu aims to become the world's environmental capital. In 2010, the office was renamed as the Kitakyushu Urban Centre (KUC) and currently conducts practical research activities with Asian cities to promote local governmental initiatives to realise sustainable cities in the areas of low-carbon and resilient cities, sound waste management, and green growth and sound urban environmental management.

(1) Focus for Impact Generation in ISRP8 by Unit

KUC continues to bolster local actions in the area of zero-carbon, circular economy, green growth, and the SDGs. KUC will further explore ways to contribute to the institutionalisation of a sustainability concept in city policies and practices in Asia-Pacific cities; the dissemination of information on the global trend of

environmental agenda to local stakeholders in Kitakyushu and Kyushu region; as well as the local coordination in transition to zero-carbon cities, circular cities, localising the SDGs as a local hub in Kitakyushu and Kyushu region in this area.

(2) Major activities in FY2021

Mainstreaming Low-carbon and Resilient Policies into Urban Planning and Implementation

In light of the increasing number of commitments to zero-carbon declared by cities in Japan, KUC conducted a needs survey for zero-carbon cities in Kyushu on action plan development and implementation. Based on the results, KUC studied what the best approach would be for supporting local governments and how to effectively implementing an urban carbon mapping tool. In addition, considering the fact that residents must make lifestyle changes to make the transition to a zero-carbon city, KUC conducted awareness-raising activities in Kitakyushu and Kagoshima by holding a "Workshop on Decarbonized Lifestyles", with a view to creating a template of the workshop that can be deployed in other municipalities. In addition, KUC participated in individual projects (i.e. collaboration projects between Hai Phong City – Kitakyushu City; Koror State – Kitakyushu; Soc Trang – Hiroshima Prefecture) as part of MOEJ's "City-to-City Collaboration Project for a Zero Carbon Society" (19 projects were adopted in FY2021). This project aims to take zero/low-carbon technologies and know-how accumulated in Japanese cities and deploy them overseas under the framework of city-to-city collaboration. KUC has been acting as the secretariat for this project platform continuously since FY2013, and has contributed to maintaining momentum toward the realisation of a zero-carbon society at the city level in Japan and internationally, even in the face of the COVID-19 pandemic. Regarding the Hai Phong City – Kitakyushu City collaboration, zero-carbon scenario development using the Asia-Pacific Integrated Model (AIM) was also initiated.

Evolving Sustainable Waste Management Practices

With the aim of building a resource-circulating society at the city level, KUC provided various support to central and local governments, as well as to international organisations in Asia. Specifically, IGES was commissioned by UN-Habitat to be an implementation partner of the Healthy Oceans Clean Cities Initiative (HOCCI), a project to reduce marine plastics in six model cities in the Philippines. Among other activities, KUC was responsible for the development of three national-level policy papers, education materials, and coordination with Calapan and Davao cities for the preparation of their action plans for marine litter reduction and pilot project concept notes. In addition, a feasibility study on the establishment of a resource-circulating model targeting plastic waste in Samet Island, Thailand was initiated under funding from the Alliance to End Plastic Waste (AEPW). KUC also supported the development of a national action plan for reducing marine plastic litter in Myanmar and Cambodia as part of the Japan-ASEAN Integration Fund (JAIF). KUC assisted a project in charge of conducting waste surveys and capacity building in three cities in Cambodia. In Japan, KUC contributed to the development of the "Kitakyushu Circular Economy Vision" which shows the future direction of environmental industries located in Kitakyushu in transition to a circular economy, working in collaboration with a local business consortium and publishing a report. Besides that, KUC also provided technical assistance to a company based in Kitakyushu City that aimed to initiate a composting business using municipal solid waste in Indonesia. Lastly, KUC collaborated with a university in Slovenia to develop policy recommendations for resilient circular regions as well as collaboration with a university in Norway to underpin circularity at the city level.

Promoting Green Growth and Sound Urban Environmental Management (Localising the Sustainable Development Goals (SDGs) in Kitakyushu City and Kyushu Region)

KUC researchers have been acknowledged as practitioners and experts on SDGs localisation, and have been invited to various important international and domestic events as speakers and facilitators. Regarding

the OECD's Territorial Approach to the SDGs, KUC contributed to the successful finalisation of Kitakyushu City's report and launch event in June 2021. As a follow up activity, a KUC researcher has been assigned as a member of the Steering Committee of OECD, and contributed to the development of a good practice collection, "Tool Kit". As for the KUC initiative, KUC organised the 3rd Kitakyushu SDGs Training online in March 2022, adding Goto City, Nagasaki Prefecture to the training as well as Kitakyushu City. KUC is also a committee member for the evaluation process to select award nominees for the Kitakyushu SDGs Award. KUC provides lectures and workshops at an increasing number of universities in Kyushu including Kyushu Institute of Technology, Kyushu International University, University of Kitakyushu, Seinan Women's University and Nagasaki University. As a new initiative, IGES led a discussion with MOEJ regional office in Kyushu, the City of Kitakyushu, and local financial institutes to develop a local ESG finance scheme in a conjunction with the SDGs registration programme targeting local SMEs set up by the city government, and KUC proposed a scheme to the city government.

(3) Selected publications

- Book Chapter "Enabling Japan's Low Emissions Technology Collaboration with Southeast Asia: The Role of Co-innovation and Co-benefits" (Aligning Climate Change and Sustainable Development Policies in Asia)
- Article "Establishing a New Balance: A Fair Marriage between Global and Local Value Chains" (Global Solutions)
- Article "Circular Economy in a Global Market Perspective" (Global Solutions)
- Peer-reviewed Article "Trends of the Zero Carbon Cities in Japan" (Asian Research Policy)
- Fact Sheet "Pathway to a Zero Carbon City: Island of Energy, Goto City, Japan"
- MOEJ Brochure "City-to-City Collaboration for Zero-Carbon Society 2021"
- Kitakyushu Circular Economy Study Committee Report "Creating a Vision for the Environmental Industry of Tomorrow's Kitakyushu" (in Japanese)

3.3. Regional Centre in Bangkok (BRC)

IGES Regional Centre in Bangkok (BRC) has served as a hub for networks and partnerships in the Asia-Pacific region since its establishment in 2011. It focuses on priority issues including climate change mitigation, adaptation, environmental safeguards and sustainable cities, and manages relevant networks for knowledge sharing, as well as implements relevant projects in close collaboration with various supporting organisations and national and sub-national governments

(1) Focus for Impact Generation in ISRP8 by Unit

BRC intends to create the following impacts: (1) increase the capacities of ASEAN governments to develop and implement climate change adaptation policies and projects through ASEAN project on disaster risk reduction by integrating climate change projection into flood and landslide (2nd phase) and AP-PLAT, (2) adopt know-how driving clean development and mobilise resources for regional engagement in climate change activities by implementing several projects of the UNFCCC-IGES Regional Collaboration Centre (RCC), (3) improve environmental compliance and enforcement of pollution control practices in 18 Asian member countries of Asian Environmental Compliance and Enforcement Network (AECEN), and (4) improve environmental quality in ASEAN cities through better long-term city planning and higher capacity to implement transformative local actions, closely linked to the SDGs by proposing and conducting ASEAN SDGs Frontrunner Cities Programme (2nd phase).

(2) Major activities in FY2021

Climate Change Mitigation

The UNFCCC-IGES Regional Collaboration Centre (RCC) provides multifaceted support to facilitate the implementation of the Paris Agreement. RCC organised two workshops on Good Practices in NDC Update and Implementation, one for Asia, Middle East and North Africa, and the other for the Pacific. Regarding climate finance, RCC has been implementing several Needs-Based-Finance projects in a number of subregions, including ASEAN, Asian LDCs, Central Asia and South Caucasia. On market mechanisms, RCC continues to provide support for the Clean Development Mechanism (CDM) and standardised baselines in the Asia-Pacific region and assists ASEAN countries and Pakistan in exploring the potential of carbon pricing instruments. RCC has also played a more prominent role for monitoring, reporting and verification (MRV) networks in South East and South Asian countries, and has paired with partners to organise a series of virtual workshops on the Enhanced Transparency Framework and existing MRV mechanisms.

Climate Change Adaptation

The second phase of the project on disaster risk reduction by integrating climate change projection into risk assessments (ASEAN DRR-CCA) has been designed to widen the application of methodologies and multi-sectoral approaches developed to manage risk, through risk assessments at country-level, scenario building, modelling, downscaling exercises, using river basin pilot models (RBPs) as trial study area and providing adequate transfer of necessary knowledge, tools and techniques through joint-implementation.

The project aims to build a strong basis for developing an integrated approach to long-term management of floods, drought and landslide in ASEAN. It also targets long-term positive impact and aims to make meaningful progress by improving institutional mechanisms and integration of DRR/CCA into development plans, to help address future risks and enhance better inter-ministerial/agency coordination as a step forward in risk reduction planning and implementation.

The Inception Meeting for Phase 2 will take place in October 2022. Phase 1 made great achievements, carried out 15 major activities with more than 600 participants altogether. Activities were designed in a participatory manner, engaging all key agencies, ensuring multi-stakeholder cooperation. The final output contributed to the regional and global efforts on disaster risk reduction, including its Contributing Paper to the Global Assessment Report 2022 (GAR2022), two guidelines endorsed by ASEAN countries, and also receiving the 3rd Mountain View Award for Best Impact Generation. More details can be found on the project website [<http://aseandrr.org>]

In addition, BRC contributed to the launch of the Asia-Pacific Adaptation Information Platform (AP-PLAT) Capacity Development Program together with AW. Under MOEJ commissioned work, BRC launched a portal site on the AP-PLAT website for capacity development, and developed four e-learning modules and publications on adaptation. BRC also organised a consultation meeting for AP-PLAT capacity development with partner organisations to enhance networking activities. For outreach activities, AP-PLAT sessions were organised at APCW and COP26.

Localising the SDGs in ASEAN Cities

In FY2021, BRC project team focused on two primary activities: (1) the reporting, promotion and dissemination of results and achievements (including showcase publications and videos) of the the ASEAN SDGs Frontrunner Cities Programme Phase 1 (SDGs-FC 1 completed in Dec 2020) at various national/regional/global events, including at the 12th High-Level Seminar on Sustainable Cities 21-22 Feb 2022; and (2) development of project proposal of the SDGs-FC Phase 2 for approval by the funder (Japan-ASEAN Integration Fund; JAIF) and ASEAN Member States. Phase 1 outputs and Phase 2 proposal have

been presented to the appraisal processes of the JAIF Management Team, followed by the 19th Annual Mtg. of ASEAN Working Group on Environmentally Sustainable Cities (AWGESC), 15th ASEAN-Japan Dialogue on Environmental Cooperation (AJDEC), and the 18th ASEAN Plus Three Senior Officials on Environment (SOME) in 2021. As the Phase 2 project proposal is expected to be fully approved by September 2022 towards project inception in November 2022, BRC initiated preparatory work and consultations with key project focal points at the start of 2022.

Environmental Compliance and Enforcement

AECEN co-hosted the Environmental Law Champions Lecture Series including 2021 including Compliance and Enforcement in Environmental Impact Assessment, Environmental Crime - An Overview, Case Study on Waste Crime - Prosecuting the Export of UK Solid Waste to Other Countries, and Ecocide as a new international crime. The Lecture Series was designed to promote environmental law and provide opportunity for the networking for the Environmental Law Champions which include university lectures, trainers, government officials and practitioners dedicated to strengthen capacity for effective environmental governance in countries of the Asia-Pacific. Each webinar has been placed on ADB e-learn and will provide certificates for those who have completed the course. In addition, AECEN also represents the regional network in 24-hour Environmental Rule of Law Celebration (Marking 40 Years of the Montevideo Programme and 50 Years of Environmental Law). In addition, AECEN has been in discussions with ELI and INECE about co-hosting a webinar series on enforcing climate legislation and drafting enforceable climate legislation, and enforcing requirements of environmental impact assessment, which will be conducted in FY2022.

Sustainable Consumption and Production (SCP)

In Cambodia, BRC has led experts under SWITCH-Asia technical assistance to enhance policies on SCP and circular economy in the garment sector, including preparation for a policy analysis report, and conducting consultations with stakeholders and SWITCH-Asia Grant projects.

In collaboration with the Ministry of the Environment, Japan, BRC completed a publication on Policy Analysis: Improving Sustainable Consumption and Production (SCP) in the Garment Sector in Cambodia. This upcoming document focuses on the management of resources, waste, wastewater and chemical flows. It aims to assist policymakers in relevant ministries, as well as other stakeholders, to better identify areas of opportunity for further action towards SCP. A series of policy recommendations are also provided in order to accelerate the shift towards SCP in Cambodia's garment sector, and to future-proof the sector against the increasing demand for sustainable production practices in the global market.

In Viet Nam, BRC led experts under SWITCH-Asia technical assistance on enhancing SCP in the seafood sector by conducting policy assessment and capacity building. In collaboration with the Ministry of Industry and Trade, several publications have been produced and are soon to be published. Guidelines for SCP in the seafood sector in Viet Nam provide a holistic systems approach, based on sustainability issues in the different stages of the seafood supply chain, with a particular focus on Pangasius as a species of particular importance to the Vietnamese seafood sector. The guidelines aim to assist decision-makers in the seafood supply chain along with policymakers who need to know how to sustainably source, manufacture, and export seafood products and apply for certification schemes for eco-labels to improve the market recognition of their products. The guidelines will also help consumers and consumer groups to understand the consumption aspects of SCP in the seafood sector. Two supporting publications will also be published shortly: the Manual on Resource Efficiency – Cleaner Production in the Pangasius Processing Sector and the Sustainable Seafood Consumer Awareness Campaigns Guidance Note.

(3) Selected publications

- Policy Report “Private Sector Perspectives on Carbon Pricing Instruments in ASEAN”
- Book Chapter “Disaster Risk Reduction in the ASEAN region: Understanding and assessing systematic risks of floods and landslides in a river basin context” (Global Assessment Report on Disaster Risk Reduction 2022 (GAR2022))
- E-learning modules on adaptation (4 modules)
- “Capacity Development” for climate change adaptation in international cooperation

3.4. Tokyo Sustainability Forum (TSF)

The Tokyo Sustainability Forum (TSF) aims to facilitate impact generation with various stakeholders, particularly those based in Tokyo. It hosts the IPBES Technical Support Unit and is co-located with the ICLEI Japan office. The Forum also works in collaboration with the Biodiversity and Forests Area and the City Taskforce.

(1) Focus for Impact Generation in ISRP8 by Unit

TSF will continue to contribute to the impact generation of IGES by providing a comfortable and safe office environment for IGES staff. In particular, TSF will strengthen its support for online meetings and remote work, which are rapidly increasing at TSF in the era of “new normal.” TSF will also support IGES Management in attending online international conferences to showcase the latest findings of IGES.

TSF will strive to improve its operations with regular feedback from IGES staff. In addition, TSF will hold seminars and workshops to enhance the collaboration between IGES and national agencies such as MOEJ, as well as non-national stakeholders including the private sector and local governments. TSF will provide necessary assistance to IPBES-TSU-IAS and ICLEI-JAPAN and conduct activities to strengthen the collaboration with them.

Furthermore, TSF will work on projects in cooperation with relevant IGES teams on Biodiversity and emerging issues that do not fall under the scope of other units. In particular, with regard to Environmental Impact Assessments, TSF will actively work on necessary surveys, development of information platform, and bilateral support to strengthen the Environmental Impact Assessment systems and implementation in Asian countries in support of the overseas business expansion of Japanese companies.

(2) Major activities in FY2021

IPBES Technical Support Unit

TSF continued to host the IPBES Technical Support Unit for the Assessment of Invasive Alien Species (TSU-IAS), and supported its work, including the development of a thematic assessment report on invasive alien species.

International Collaboration on Environmental Impact Assessment (EIA)

In order to promote international collaboration on EIA in other Asian countries, and commissioned by the MOEJ/ Nippon Koei Co., Ltd., TSF conducted comparative research on selected countries’ systems and their implementation related to the target projects covered by EIA. The commissioned work from the EIA division of the Minister’s Secretariat of MOEJ was completed in 2021.

Support for preparations to hold the 2nd Asia Parks Congress

The 2nd Asia Parks Congress was held in Kota Kinabalu, Malaysia in May 2022, and TSF was commissioned by MOEJ to draft a presentation by the government of Japan. TSF also set up a working group on "Nature-based Solutions (NbS)", including preparations for the draft NbS promotion guidebook, etc.

Maintenance and Improvement of the Office Environment

Efforts were made to maintain and improve the office environment to facilitate the activities of Tokyo-based IGES Management, Senior fellows and Fellows, in the face of the COVID-19 pandemic.

(3) Selected publications

- FY2021 Commissioned Report for the 2nd Asia Parks Congress preparation support project

3.4.1. IPBES-TSU hosted at Tokyo Sustainability Forum

IGES has been hosting the technical support unit for the IPBES assessment of invasive alien species and their control (IPBES-TSU-IAS) since February 2019 at TSF. The TSU has functioned as an extension of the IPBES secretariat that is headquartered in Bonn, Germany. The purpose of the TSU has been to support and assist in the coordination of the IPBES invasive alien species assessment, including drafting the assessment report.

(1) Major activities in FY2021

The IPBES assessment of invasive alien species was launched in May 2019. In this project, around 90 experts selected from more than 40 countries are working on the scientific assessment of the status and trends of invasive alien species, their impacts to biodiversity and socio-economy, and policies or measures for their prevention and management. The final report and its summary for policymakers will be published in 2023.

IPBES-TSU-IAS has been providing support to the overall coordination for drafting work on the assessment report including the planning of the assessment timeline, organisation of author meetings, and managing references and data. In FY2021, the TSU organised the dialogue meeting for national focal points (January 2022, online), dialogue workshop for stakeholders (January 2022, online), and the third author meeting (April 2022; Aarhus, Denmark and online). Additionally, it contributed to the organisation of the third dialogue workshop between authors and representatives of indigenous peoples and local communities (February 2022, online).

Funding for TSU operations is provided by the UNEP Trust Fund, matched by contributions from the Ministry of the Environment, Japan.

3.5. Beijing Office (BJG)

The Beijing Office was set up within the Sino-Japan Friendship Center for Environmental Protection of the Ministry of Environmental Protection of China (currently the Ministry of Ecology and Environment of China) in 2006 as a base to facilitate the implementation of research activities in China. The office conducts a variety of studies and research activities based on bilateral cooperation with China, as well as multilateral cooperation (including international organisations).

(1) Focus for Impact Generation in ISRP8 by Unit

As the Integrated Coordination Platform between the governments/cities/companies of Japan and China, BJG will conduct the model projects introducing air pollution control technologies etc. with co-benefits effect, whose outcomes will be disseminated and promoted on the markets in the Asian region including China. By doing so, BJG will contribute to materialising a decarbonised society, and will support environmental business between Japanese and Chinese companies.

(2) Major activities in FY2021

Promoting Co-benefits of Better Air Quality and CO2 Reduction in China through Model Projects

The “Japan-China inter-city cooperation project” was started in FY2014 to improve air quality in China, based on the existing relationship of friendship cities between Japan and China, and aimed at promoting Japan-China cooperation mainly by capacity building. This period of cooperation (Phase 1) ended in FY2018. From FY2019, a new cooperation project (Phase 2) started based on the “Agreement between the Ministry of the Environment, Japan, and the Ministry of Ecology and Environment of the People’s Republic of China on cooperation to implement research and model projects to improve air quality,” which was signed by the Ministers of the Environment of Japan and China at the Tripartite Environment Ministers Meeting among Japan, China and Korea (TEMM) in June 2018. In line with the policies of cooperation in Phase 2 shown below, IGES carried out model projects and research from FY2019 through coordination with stakeholders and local governments in Japan and China. The results of Phase 2 were highly appreciated by both Japan and China in the summary at the Japan-China joint conference convened in February 2022, and Phase 2 was concluded successfully.

Good results were obtained from some of the model projects implemented in China, and the aim was to deploy them in third countries (e.g. Indonesia). To this end, IGES engaged in discussion and coordination with relevant parties in Japan and in third countries, to consider the possibilities of developing model projects using the Joint Crediting Mechanism (JCM) scheme.

Policies of Cooperation in Phase 2

When deciding specific content for cooperation, research and model projects should be selected and implemented so as to fulfill the conditions shown below:

- (1) Impact given to policies and contribution to better air quality
- (2) Co-benefits of GHG reduction
- (3) Contribution of Japanese environmental technologies and facilities
- (4) Possibilities of horizontal development in China and development to Asian countries (third countries)

Major activities of the model projects etc. implemented in Phase 2 are as follows.

1	[Shenyang City] Research on measures for reduction of particulate matter emissions by utilising crop residues
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2	[Chongqing city, Shanghai city, and Sino-Japan Friendship Center for Environmental Protection] Model project on measures to control small-scale distributed sources of air pollution in the restaurant industry
3	[Guangdong province] Model project on reduction of VOC emissions from manufacturers
4	[Xi'an city] Research on measures in priority areas to reduce ozone pollution over wide areas
5	[Sino-Japan Friendship Center for Environmental Protection] Building a platform to introduce Japanese VOC technologies and incorporating them into China Ecological & Environmental Technology Transformation (CEETT)
	[Reference: an example of deploying the results of a model project in China in a third country] The results of the model project implemented in Phase 1 on energy conservation and reduction of pollutant emissions in textile dyeing industry is under consideration to be deployed in Indonesia.

(3) Selected publications

- Serial columns in “Kankyō Shimbun” (every month) issued by Kankyōshimbunsha, Co., Ltd.
- Serial columns in “Global Net” magazine (every two months) issued by Global Environmental Forum

4. Strategic Management Office (SMO)

As a mechanism to effectively promote strategic research and the impact generation of outputs in the Integrative Strategic Research Programme for the 7th Phase (from FY2017), the former Programme Management Office (PMO) and Secretariat were merged to create the Strategic Management Office (SMO). The SMO is charged with three functions: Knowledge and Communications (KC); Research and Publications (RP) and Planning and Management (PM).

4.1. Knowledge and Communications (KC)

(1) Major activities in FY2021

Strengthening the institutional impact generation capacity

In the ISRP8 started in FY2021, an institutional target was set to make 30 intended impact cases each year. It is also deemed that the scale of impacts will become larger than before. SMO-KC works to promote the strengthening of the institutional impact generation capacity by focusing on the following points.

- Institutional operations at selected international processes (UNGA/HLPF/APFSD, UNFCCC-COP, CBD-COP, UNEA, G7/G20, T7/T20, etc.)
- Institutional strategic publications (IGES messages, submissions to international/domestic processes, commentaries, knowledge brokering products, Japanese translation of selected sustainability / environmental assessment reports, etc.)
- Institutional strategic networking (Serving as a Secretariat amongst research institutes, strengthening institutional linkage incl. MOUs with UN and selected international organisations.)
- Institutional campaigns and events (ISAP, post COP seminar, etc.)
- Facilitation of planning/planned impact generations (Monthly meetings for cross-unit operations, President awards, SOF, etc.)
- Public Relations (Press release, media seminars, webinars, IGES owned media (web, newsletter, SNS), etc.)

- Strategic Communications (Communication Planning, Op-Ed., special webpage, commercial publication, etc.)

Main achievements are provided in Section 1.

4.2. Research and Publications (RP)

(1) Major activities in FY2021

Direct contribution to research and research outputs

- To directly produce and contribute to publications, RP conducted research on issues related to SDGs, climate and sustainability science. Main outputs included a T7 policy brief on “Using the SDGs to Realize the G7’s ‘Green Revolution that Creates Jobs’” and a discussion paper on 46%削減と炭素中立を目指す日本のエネルギー政策設計図の理解と前進に向けた提案—新しいエネルギー基本計画と NDC をどう捉えるか？ (Understanding Japan's Energy Policy Blueprint for 46% Reduction and Carbon Neutrality and Proposals for Moving Forward: How to Understand the New Basic Energy Plan and NDC) as well as contributions to six peer reviewed articles on topics such as biodiversity, ecosystems, and sustainable agriculture. RP also contributed to “IGES Main Messages on the 2030 Agenda for Sustainable Development”, “Actionable Recommendations and Ambitious Directions for Restoring Planetary Health in the COVID-19 Era: IGES Position Paper 3.0”, and 3 technical analyses of Third Biennial Update reports (Malaysia, Thailand, and Zambia). Twelve non-peer reviewed articles were published in Japanese on various aspects of climate and energy.
- RP coordinated the following externally funded projects:
 - Sixth ASEAN State of the Environment Report (JAIF)
 - E-Asia (with BDF)
 - MOEJ project on sustainability assessment indicators
 - Keidanren project on biodiversity
 - Belmont Forum “ABRESO” (with BDF)
 - Bilateral Slovenia Project (with BDF)
 - Suishinhi S-15 (with BDF)
 - Kakenhi (with BDF)
 - JICA capacity building project
 - *Sustainability Science* editorial office (Springer)
- RP supported Prof. Takeuchi’s participation in UNEP’s Steering Committee on the Future of GEO (Global Environmental Outlook).
- RP contributed to the IPBES Nexus assessment as CLA.
- RP coordinated and/or contributed to several translations (Japanese/English) of major outputs such as the UNEP’s Adaptation Gap Report (Executive Summary) and Emissions Gap Report (Executive Summary), and the Asia and the Pacific SDG Progress Report of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), IPBES-IPCC Joint Workshop Report, Other major translations included the International Resource Panel’s (IRP) “Policy Options to Eliminate Additional Marine Plastic Litter”, and the World Business Council for Sustainable Development’s *Vision 2050*.

Institute-wide research management

- RP managed the SRF application process. RP also conducted a review of the achievements of the FY2020 SRF projects and is in the process of reviewing the FY2021 projects.
- RP compiled the institute-wide publication plan with the list of planned outputs, and coordinated reporting on actual outputs. RP also compiled the citation statistics for peer reviewed journal articles and analysed the impact factors of journals in which IGES researchers publish articles.

- The Publication Policy was maintained, and RP also continued to manage the publication approval process.
- RP managed the editorial office of the peer reviewed journal *Sustainability Science*.
- RP supported the process for selecting the IGES President's Award for Best Publication.

Research-related support

- RP managed the Library including maintenance of database subscriptions.
- RP provided editing services, including both English and Japanese, not only for research outputs but also for communications and management-related documents.
- RP coordinated translation services.

Institute-wide achievements regarding outputs are indicated in Section 3.

4.3. Planning and Management (PM)

Major activities in FY2021

Planning and Management streamlined the procedures in planning and decision-making simultaneously taking consideration of appropriate resources management (financial and human) and provided corporate management services to maintain the organisational status and interest, support research activities through five functions: (i) Planning and Evaluation, (ii) Information and Communication Technology (ICT) Systems, (iii) Financial Management, (iv) HR Management, and (v) General Administration.

Main achievements are provided in Section 4.

ANNEX 2: KEY ACHIEVEMENT BY OTHER PROJECTS FOR PUBLIC-INTEREST PURPOSES

1. Technical Support Unit (TSU) for the Intergovernmental Panel on Climate Change (IPCC) - Task Force on National Greenhouse Gas Inventories (TFI)

The TSU for IPCC TFI provides scientific, technical and organisational support to the TFI under the supervision of the TFI Bureau (TFB) to fulfil the following two objectives.

- To develop and refine an internationally-agreed methodology and software for the calculation and reporting of national greenhouse gas (GHG) emissions and removals;
- To encourage the widespread use of this methodology by countries participating in the IPCC and by signatories of the United Nations Framework Convention on Climate Change (UNFCCC).

In FY2021, the total amount of the funds received was JPY 177 million (including JPY 150 million from the Government of Japan), while the total expenditure was JPY 143 million. The unspent amount of JPY 34 million, which was caused mainly by the underspending on travel due to the COVID-19 pandemic, has been deposited into the Deposits for IPCC TFI TSU Project so as to be appropriately used in FY2022 and thereafter.

(1) Development, Maintenance and Improvement of IPCC Inventory Software

The IPCC Inventory Software¹⁴ helps inventory compilers to estimate emissions and removals of greenhouse gases according to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2006 IPCC Guidelines). In FY2021, TSU worked extensively in developing the software through drafting specifications for the updates, contracting the software company and testing beta versions of the software, as well as developing supporting tools, such as Excel files and add-ons. TSU has attended a number of events to present the software, and participated in workshops organised by the UNFCCC Secretariat on training in its use.

(2) Management of IPCC Emission Factor Database (EFDB)

The IPCC EFDB¹⁵ is a database of emission factors and other parameters. By using this database, national experts can find nationally appropriate values to develop national GHG inventories in accordance with the IPCC inventory guidelines. In FY2021, TSU continued enhancing the usefulness of the database by collecting data, organising relevant expert meetings, including data meetings in all sectors, and supporting the EFDB Editorial Board, as well as implementing managing and developing activities to improve the use of the database.

(3) Production of Methodological Reports

TSU concluded preparatory work to produce a new Methodology Report on estimation of Short-lived Climate Forcers (SLCF) emissions, following the decision taken by the IPCC at its 49th Session. TSU collected information on SLCFs sources and estimation methodologies, held two meetings with remote participants, produced two reports with all info shared at the meetings including information in tabular

¹⁴ <http://www.ipcc-nggip.iges.or.jp/software/index.html>

¹⁵ <http://www.ipcc-nggip.iges.or.jp/EFDB/main.php>

form of source categories of SLCFs as well as of associated methods and datasets already available. Furthermore, TSU worked on corrigenda for the 2006 IPCC Guidelines and their 2019 Refinement.

(4) Inventory Internship Programme

In FY2021, this programme was not implemented.

(5) Collaboration with Other Organisations

In FY2021, TSU continued cooperation with other organisations on inventory-related matters. For example, TSU contributed its support to inventory-related capacity building programmes implemented by the UNFCCC and the National Institute for Environmental Studies (NIES) by participating to virtual events organised by those organisations as well as by providing inventory-related materials developed by the IPCC TFI.

TSU also collaborated with other projects in IGES, where possible, on matters relating to estimation of greenhouse gas emissions and removals.

2. Asia-Pacific Network for Global Change Research (APN)

APN is an intergovernmental network that aims to promote collaborative research and to develop the capacity of scientists, practitioners and others, especially in developing countries, on the following areas: climate; biodiversity and ecosystems; air, land, coasts and oceans; food, water and energy; risk and resilience; and human dimensions. Through research, capacity development, science-policy interactions and stakeholder engagement, APN contributes towards a dynamic and responsive Asia-Pacific community effectively addressing global change and sustainability through innovative and transdisciplinary research and capacity development activities.

As a summary of its financial status, the overall expected revenue in FY2021 is JPY 287 million, and the expenditure is JPY 237 million. This has resulted in a surplus of approximately JPY 50 million, reflecting the foreign exchange profit (JPY 40 million) due to the sharp depreciation of the yen during the fiscal year. Since the amount of JPY16 million out of this surplus will be applied to the costs of projects for multiple fiscal years which are ongoing or will start in FY2022, it is reserved for the Deposit for Promoting APN Projects. Eventually the substantial balance has been settled with a surplus of JPY 34 million.

APN conducted the following activities in FY2021.

(1) Collaborative Regional Research Programme

To contribute to the development of policy options that respond to global change from the scientific perspective in the Asia-Pacific region, the 47th Steering Committee Meeting of APN approved funding to support 11 regional research proposals under the Collaborative Regional Research Programme (CRRP). These were selected from the APN FY2020 Call for Proposals for support in FY2021.

(2) Scientific Capacity Development Programme (CAPaBLE)

To build the scientific capacity in research on global change and sustainability in developing countries, the 47th Steering Committee Meeting of APN approved funding to support 13 proposals under the

Scientific Capacity Development Programme (CAPaBLE). These were selected from the APN FY2020 Call for Proposals for support in FY2021.

(3) Direction and Activities of APN

i. Contribution to the IPCC Sixth Assessment Report (AR6)

Over 100 publications from APN projects and activities that have been cited in the Working Groups I, II and III contributions to the IPCC AR6. The majority (76%) of the cited APN publications were referenced in the Working Group II report, Climate Change 2022: Impacts, Adaptation and Vulnerability, particularly Chapter 10 (Asia), Chapter 15 (Small Islands), and Chapter 5 (Food, fibre, and other ecosystem products).

ii. Enhancing strategic relationships with relevant organisations

To enhance strategic relationships with global change and sustainability organisations, the First Workshop between the Alliance of International Science Organizations (ANSO) and APN was held online in January 2022 and two Joint Study Group Meetings between the North Pacific Marine Science Organization (PICES) and APN were held online in February and May 2022.

iii. Extension of the Fifth Strategic Plan

The 25th Intergovernmental Meeting (IGM) held online in June 2022 decided to extend the fifth strategic phase (2020-2024) by two years, given that the progress of activities and projects planned for this period has been significantly stalled and delayed due to the severe impact of the COVID-19 pandemic.

iv Collaborative Projects with IGES

With APN funding, two projects are currently underway. The first is with APN and IGES-KRC and on Regional-CES in the Philippines, Thailand and Viet Nam. The second is with IGES-BRC and IGES-HQ on Locally Led Adaptation in the Asia-Pacific region that is expected to contribute to the capacity development component of AP-PLAT.

(4) Contribution at Environmental Forums

i. Contribution at International Science-Policy Forums

APN made presentations and participated in discussions in a number of in person/online/hybrid international forums, including the UNFCCC COP26 held in Glasgow, United Kingdom in October-November 2021, and the 14th meeting of the UNFCCC SBSTA56 Research Dialogue held in Bonn, Germany in June 2022. At COP26, APN presented at a side event on the role of information platforms for climate-resilient societies in the Asia-Pacific region, which was jointly organised by the National Institute for Environmental Studies, Japan (NIES), Ministry of the Environment, Japan (MOEJ) and IGES. At SBSTA56, APN presented a poster to showcase the outcomes of two IPCC-cited projects. At the end of the FY2021, APN also attended the 9th Plenary of IPBES and presented a poster at the Stakeholder Day, held in Bonn, Germany in July 2022.

ii. Joint Activities with the Hyogo Prefectural Government

APN and the Hyogo Prefectural Government, which hosts the Secretariat and provides operational support to APN, jointly organizes annual forums to raise awareness on environmental issues among the residents of Hyogo Prefecture. In FY2021, APN and the Hyogo Prefectural Government jointly organised a hybrid-style seminar on "SDGs • Climate Change and Food Loss" in December 2021 in Kobe. APN, Asian Disaster Reduction Center, JICA Kansai Center and the

Graduate School of Disaster Resilience and Governance, University of Hyogo, jointly organised an online forum entitled "Climate Change and Disaster Reduction" in February 2022.

3. Japanese Center for International Studies in Ecology (JISE)

JISE primarily carries out field surveys and practical research to restore and reconstruct ecosystems and biodiversity from local to global levels aiming to realise societies based on sustainable development from the perspective of plant ecology. In FY2021, JISE implemented the following activities, including training and information collection and provision on forests, nature regeneration and ecology.

As a summary of its financial status, overall revenue in FY2021 was JPY 56 million and the expenditure was also JPY 56 million, resulting in a good balance. The revenue from the interest from JISE Funds accumulated in the past has contributed to this balance.

(1) Research Projects

On the international research front, JISE conducted basic and practical research projects aimed at the regeneration of tropical forests mainly in Malaysia, Kenya and Lao PDR, which were partially supported by external research grants. The projects promoted hands-on activities for reforestation and nature restoration by using ecological approaches to clarify floristic composition and structure of natural forests and growth conditions of planted trees and raised seedlings, and by providing technical support for school children to learn about biodiversity in educational institutions. JISE analysed vegetation data and growth data of regenerated forests in Malaysia and Kenya, and presented the results at international conferences. In addition, JISE promoted studies on raising young seedlings of useful tree species aiming at regeneration of Satoyama forests as well as restoration of degraded forests in Southeast Asia in collaboration with the IGES Biodiversity and Forest (BDF) Area.

On the domestic front, JISE carried out research on environmental conservation forests, which included monitoring their growth processes, comparative studies of natural vegetation and secondary vegetation, as well as studies to develop quantitative evaluation methods for the disaster mitigation functions of vegetation resources, particularly fire protection functions. Some outputs of the above-mentioned research were presented at various domestic academic meetings, as well as being published in the annual bulletin "Eco- Habitat", the "JISE REPORT" and newsletters. In light of restrictions on field surveys due to COVID-19, it was a good opportunity to summarise research results so far, with several research papers being published.

In addition to the above, JISE conducted other projects commissioned by private companies, local governments and non-profit organisations. These included vegetation surveys and planning for forest and nature restoration, technical instruction in tree planting as well as vegetation monitoring surveys in forest and nature restoration areas in several prefectures including Tokyo and Nagano.

(2) Capacity Building

Previously held in-person, capacity development programmes for the purpose of capacity building programmes were cancelled or postponed to prevent the spread of COVID-19 infection. For the first time, JISE held an online environmental learning session and many children participated during their summer vacation. JISE also contributed as an instructor in the "Environmental Study Leader Training Course" (held online) which was organised by the Kanagawa Environmental Science Center.

(3) Interaction

JISE conducted an Open Forum in May 2022, which is held every year, entitled “Role of the Green Environment in Local Communities -Activities of JISE”, including tree planting, disaster prevention, and environmental education. It provided an opportunity to reconsider the role of the green environment in local communities, and to discuss domestic and international activities in which JISE has been involved. In addition, an open workshop was held on the theme of "Overseas Forest Conservation and Stakeholder Collaboration," in which external speakers were invited to report and discuss the results and challenges of overseas environmental restoration support activities. Both sessions were held online, attracting participants from a wide range of fields, including students, company representatives and individuals, in addition to researchers in the environmental field.

(4) Dissemination and Public Awareness

To disseminate news of JISE’s activities and for public relations purposes, JISE distributed newsletters (three issues a year) highlighting its own activities as well as the efforts of various organisations in environmental conservation. JISE also published its annual bulletin “Eco-Habitat: JISE Research” and the occasional publication “JISE REPORT” (one issue), which reports field surveys and practical activities for ecosystem conservation.

Annexed Detailed Statements

As there are no "Important Matters Supplementing Business Description" as stipulated in Article 34, Paragraph 3 of the Enforcement Regulations of the Law Concerning General Incorporated Associations and General Incorporated Foundations, no annexed detailed statements are included.