

The first time in four years after the COVID-19 outbreak, ISME/SFD held their PSC meeting



Group photo after the 19th Meeting of Project Steering Committee (PSC).

After the travel restriction for COVID-19 had been lifted, 17 officials of the Sabah Forestry Department (SFD) of Malaysia, headed by Datuk Frederick Kugan, the Chief Conservator of Forest (CCF), visited Japan from 12 to 18 July 2023 to hold the 19th Meeting of Project Steering Committee (PSC). It had been four years since the last meeting held in March 2019. The CCF and other SFD officials had visited Japan on several occasions in the past, but they had never been to Hokkaido, so at the request of SFD officials, this meeting was held in Sapporo, a city in Hokkaido.

At the opening of the PSC meeting, ISME Executive Director Prof. Dr. Shigeyuki Baba expressed his gratitude to the SFD for continuing the planting and field surveys while paying attention to the spread of the

coronavirus. Datuk Frederick Kugan reciprocated gratitude to ISME for continued support and collaboration, and expressed his wish to further deepen the cooperative relationship with ISME in the coming years of the project.

After the meeting, SFD officials visited Hokkaido University and facilities associated with the Japanese Ministry of Environment and Lake Shikotsu. SFD delegates then traveled from the Sapporo Chitose Airport to Sendai in Miyagi Prefecture to visit the areas affected by the 2011 Great East Japan Earthquake, guided by Prof. Toyohiko Miyagi, Professor Emeritus of Tohoku Gakuin University, and Prof. Hideaki Yanagisawa, Associate Professor of the same university.

About ISME/SFD Mangrove Project

With support from Tokio Marine & Nichido Fire Insurance Co. Ltd., Japan, ISME and SFD launched a mangrove planting project in 2011. Sabah has about 60% of the total mangrove area in Malaysia, but the area has been decreasing due to land development, illegal logging, conversion to oil palm

plantations, and construction of shrimp aquaculture ponds. ISME and SFD have been working together to restore mangrove forests in Sabah with the objectives of rehabilitating degraded mangrove forests, preserving ecosystems, supporting environmental education, and conducting surveys and research. The area planted so far covers approximately 400 ha throughout Sabah.

ISME visited Sabah, Malaysia, for the 20th Meeting of PSC

The 20th Meeting of PSC for ISME/SFD Project was held on 23 February 2024 in Kota Kinabalu, Malaysia. Prof. Dr. Shigeyuki Baba, Executive Director of ISME, and Prof. Toyohiko Miyagi, ISME Senior Volunteer Researcher/Professor Emeritus of Tohoku Gakuin University, and members from the ISME Secretariat visited Sabah from 20 to 26 February 2024 to attend the PSC meeting. At the PSC meeting, Dr. Joseph Tangah, the Project Leader, reported on the progress of the project, and the meeting discussed future reforestation policies and research methods in the mangrove plantation area.

On 22 February, a day prior to the meeting, a commemorative mangrove planting was held by ISME

staff at the project site in the Weston River in the Beaufort District. On 24 February, the participants moved to Sandakan to visit Sungai ISME (a river named after ISME by the project), where mangroves were planted in 2012. On 25 February, they visited a project site in Sepilok Laut.



ISME staff and SFD officers at the Weston River, Beaufort

Survey on mangrove carbon storage in Sabah, Malaysia

In today's climate crisis, mangrove forests are attracting more attention than ever as a mitigation measure against global warming as "blue carbon sink" because it is said to have a higher carbon sequestration function than terrestrial forest ecosystems. However, growth rate differs greatly depending on the tree species that make up the mangrove forest and other factors such as salinity. It is desirable to accumulate detailed data on tree growth according to the tree species and growth environment. Therefore, ISME has decided to conduct surveys on environment and a growth rate as well as belowground carbon stock at the mangrove forests of Sepilok Laut and at the project site in the Weston River.

With the help of the Mangrove Task Force of SFD and more than 10 other SFD staff members, the surveys were conducted from 14 to 29 July 2024. Participants from ISME were Prof. Dr. Shigeyuki Baba (Executive Director of ISME), Prof. Toyohiko Miyagi (ISME Senior Researcher and Professor Emeritus at Tohoku Gakuin University), Prof. Hideaki Yanagisawa (Associate Professor at Tohoku Gakuin University), Dr. Mami Kainuma (ISME Senior Researcher), Dr. Ko Hinokidani (Assistant Professor at Tokyo University of Agriculture), Mr. Atsuya Yamamoto and Ms. Nodoka

Wada (Nakanihon Air Co., Ltd.), and Motokazu Umekawa (former Tokyo Metropolitan High School teacher).

Surveys were conducted on Pulau ISME (ISME Island) in the Weston River, LTER (Long-Term Ecological Research) in Sepilok Laut, and the former aquaculture pond at Sungai Tokio Marine in Kunak.

The LTER Site, a natural mangrove forest with a walkway, was recommended for long-term monitoring by Dr. H. T. Chan (Executive Member of ISME and former Director of the Research Management Division of the Forest Research Institute of Malaysia), and Prof. J. E. Ong (a member of ISME and former Professor of



Survey on mangrove carbon storage in Sepilok Laut

Universiti Sains Malaysia, who passed away in 2021). Forest surveys included an investigation of below-ground carbon sequestration and volume of the prop roots of the genus *Rhizophora*. Single tree information such as tree height, breast height diameter, and individual location through the 3-D data obtained using a hand-held LiDAR-SLAM* was also analyzed.

The Forest Research Center (FRC) of the SFD is currently analyzing the carbon content of the forest soil. It will take some time to get all the results, but the data obtained will be shared with ISME and SFD.

*LiDAR and SLAM

LiDAR stands for Light Detection and Ranging, and it refers to graphic recognition and ranging (distance measurement) by laser irradiation approximately 300,000 pulses per second.

SLAM stands for Simultaneous Localization and Mapping, and it refers to the simultaneous execution of self-location estimation and environmental mapping.

By using a hand-held LiDAR-SLAM, it makes it possible to measure the location and shape of trees in the forest and simultaneously obtain 3-D structural data of the individual trees.

Study tour in Sabah, Malaysia

In cooperation with the SFD, a study tour was conducted in Sabah from 11 to 15 August 2024 for six graduate/undergraduate students and six high school teachers from Tokyo.

The six students were from Hokkaido University, Tohoku University, Tokyo University of Agriculture and Technology, and Obihiro University of Agriculture and Veterinary Medicine. All students were graduated from Tokyo Metropolitan Tachikawa High School.

Since it was for university students and high school teachers, the study tour was conducted in Kota Kinabalu and Beaufort and was accompanied by ISME Executive Director Prof. Dr. Shigeyuki Baba and the SFD Mangrove Task Force headed by Dr. Joseph Tangah.

The study tour included a visit to an ISME/SFD project site in Beaufort, observation of mangrove fireflies and proboscis monkeys, oil palm plantations, and rubber plantations. At the suggestion of a teacher who participated in this tour, a study tour for high school students of a Tokyo metropolitan high school is planned for March 2025.

Mangrove planting in Kiribati continued even during the COVID-19 pandemic

The Republic of Kiribati, located in the South Pacific, is facing a serious threat of submergence due to rising sea levels caused by global warming. Since 2004 with the support from the Kiribati Ministry of Environment, Lands and Agricultural Development, ISME had been working with the people in Kiribati to plant mangroves to reduce coastal erosion caused by rising sea levels.

However, due to the spread of COVID-19, the government of Kiribati has restricted the entry of foreigners to prevent the spread of infection within the country from 31 January 2020. ISME has refrained from traveling to Kiribati since then.

Although ISME refrained from traveling to Kiribati, ISME continued with “mangrove planting by the youth

of Kiribati,” an idea aimed at providing employment opportunities for young people who have lost their jobs due to the COVID-19 pandemic.

Even though members of ISME could not travel to Kiribati, mangrove planting in Kiribati continued thanks to the cooperation of young people in Kiribati. ISME plans to visit Kiribati in January 2025 for the first time after the corona outbreak to discuss future activities.



Young people in Kiribati planting mangroves

ISME project in India marks its 15th year

With financial support from Tokio Marine & Nichido Fire Insurance Co. Ltd., ISME has been conducting mangrove reforestation activities in Gujarat, India, since 2009. Objectives of the project are: preventing storm surge damage to farmland; contributing to biodiversity conservation through the formation of mangrove ecosystems; providing fodder for livestock during the dry season when fodder is scarce; and expanding employment opportunities for local residents, especially women.

Even during the period when travel was restricted due to the spread of the coronavirus, afforestation activities were continued by Daheda Sangh, a local NGO, with

the support of Dr. Bharat, the Project Coordinator, and the Gujarat Environment Commission (GEC). To date, the plantation area has extended to over 900 ha, reaching nearly 1,000 ha.



Planting mangroves on mudflats

Mangrove planting on Ishigaki Island by H.E. Ambassador of the UAE to Japan and his family

The 28th Conference of the Parties (COP28) to the United Nations Framework Convention on Climate Change (UNFCCC) was held in Dubai, United Arab Emirates (UAE), in November 2023. Prior to COP28, His Excellency Mr. Shihab Ahmed Alfaheem, Ambassador of the UAE to Japan, and his son planted mangroves on 12 November 2023 at Nagura Bay on Ishigaki Island, Okinawa, Japan, to pray for the success of COP28.

The event was co-hosted by ISME and the Yaeyama Lions Club and was attended by more than 30 people, including H.E. Ambassador Alfaheem and his son, ISME Executive Director Prof. Dr. Shigeyuki Baba and his staff, members of Yaeyama Lions Club, Representative Director of the INPEX/JODOCO Foundation Mr. Hiroshi Fujii, Ms. Sayumi Tamaoka of the said Foundation, Mr. Motohiko Kogo and Ms. Kiyomi Kogo of Action for Mangrove Restoration (ACTMANG), students from Yaeyama High School, Yaeyama Agriculture and Forestry High School, and other high schools in Ishigaki Island. Despite the rain, the participants planted 130 seedlings of *Rhizophora stylosa*.

And in 2024, H.E. Ambassador Alfaheem and his three sons visited Ishigaki Island to plant mangroves at Nagura Bay on Ishigaki Island on 28 September.

The event was jointly organized by INPEX/JODOCO Foundation, Yaeyama Lions Club, and ISME. It was participated by about 100 people including students from Yaeyama High School, Yaeyama Agriculture and Forestry High School, Yaeyama Commerce and Industry High School, and Self Defense Force officers stationed on Ishigaki Island. Approximately 600 seedlings of *Rhizophora stylosa* were planted.



H.E. Ambassador Alfaheem (right) and ISME Executive Director Prof. Dr. Baba (left) planting *Rhizophora stylosa*

As a token of appreciation for mangrove planting events on Ishigaki Island, H.E. Ambassador Alfaheem and the INPEX/JODCO Foundation invited five students from the three high schools and a teacher to the UAE to participate in the mangrove planting

activity in Abu Dhabi from 16 to 20 December 2024. This is an excellent opportunity for citizens and high school students of Ishigaki Island and UAE to work together on climate change through the planting of mangroves.

Mangrove Planting in Abu Dhabi by High School Students from Ishigaki Island

At the invitation of His Excellency Shihab Ahmad Alfaheem, Ambassador Extraordinary and Plenipotentiary of the United Arab Emirates to Japan, Embassy of the United Arab Emirates in Tokyo, and INPEX/JODCO Foundation, five students from Yaeyama High School, Yaeyama Agriculture and Forestry High School, and Yaeyama Commerce and Industry High School, together with an accompanying school teacher, planted mangroves in Abu Dhabi, United Arab Emirates in December 2024.

The planting activity took place on 17 December 2024 at the Jubail Mangrove Park, Abu Dhabi, organized by INPEX/JODCO Foundation and Abu Dhabi Environment Agency. The activity was also attended by students of

Abu Dhabi Japanese School, officials of the Abu Dhabi Environment Agency, local staff and Director of the INPEX/JODCO Foundation, and Executive Director of ISME. Officials from the Yaeyama Lions Club and students' parents also participated in the activity at their own expense.

After the planting activity, the students from Ishigaki visited Sea World Aquarium in the afternoon of the same day, Abu Dhabi Falcon Hospital the next day, and the Sheikh Zayed Grand Mosque the day after.

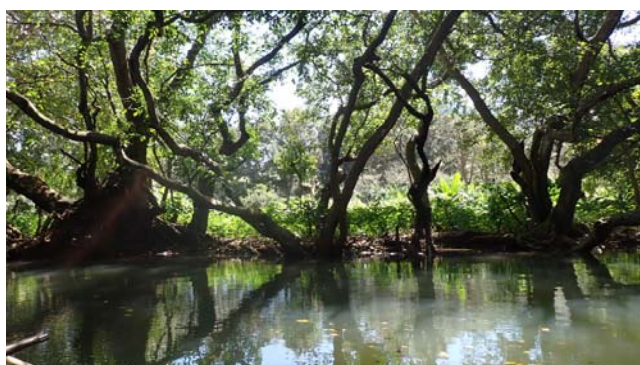
This dream visit became a reality at the invitation by His Excellency Alfaheem, the Embassy of the United Arab Emirates in Tokyo, and INPEX/JODCO Foundation. The invitation was initiated by Ambassador Alfaheem, following a previous mangrove planting activity held in Nagura Bay, Ishigaki Island in September 2024, co-organized by INPEX/JODCO Foundation, the Yaeyama Lions Club, and ISME, to which a number of high school students in Ishigaki participated.

Project in Mauritius

ISME's project in Mauritius, entitled "Human resource development and scientific support for conservation/restoration and sustainable utilization of mangrove ecosystems in Mauritius" was launched in 2022. The project was supported by a grant from a trust fund called "MOL Mauritius International Fund for Natural Environment Recovery and Sustainability," established by a Japanese shipping company, Mitsui O.S.K Lines, Ltd. (MOL), after the oil spill accident in July 2020 in Mauritius.

From 21 to 26 October 2024, Prof. Toyohiko Miyagi, Professor Emeritus of Tohoku Gakuin University, Prof. Hideaki Yanagisawa, Associate Professor of the same university, and Dr. Ko Hinokidani, Assistant Professor of Tokyo University of Agriculture, conducted surveys and delivered their presentations at the second meeting of Mangrove Platform of Mauritius (MPM).

This project is being implemented in collaboration with MOL (Mauritius) Ltd. and Reef Conservation, a local NGO in Mauritius. The purpose of the project is not only to conduct a survey on the conservation, restoration, and sustainable use of mangrove ecosystems in Mauritius, but to facilitate participation of the local people in conducting surveys and conservation activities.



Mangrove forest in Mauritius

Cooperation with SATREPS

SATREPS stands for Science and Technology Research Partnership for Sustainable Development. It is a program to promote international joint research in solving global-scale issues. The Japan Science and Technology Agency (JSP) is in charge of the domestic component while the Japan International Cooperation Agency (JICA) is in charge of the overseas component. Since its inception in 2008, 183 projects in 57 countries have been adopted.

One of the projects selected in FY2021 was “Building Sustainable System for Resilience and Innovation in Coastal Community.” It is led by Professor Nobuhito Mori of the Disaster Prevention Research Institute of Kyoto University as the leader from Japan, while the leader from Indonesia is Professor Muhammad Farid, Director of the Center for Coastal and Marine Development of the Bandung Institute of Technology.

ISME has been cooperating in this project since FY2023. From 1 to 11 September 2024, research was conducted in Bali, Indonesia, and Prof. Shigeyuki Baba (ISME Executive Director), Prof. Toyohiko Miyagi (ISME Senior Researcher and Professor Emeritus of Tohoku Gakuin University), Prof. Hideaki Yanagisawa (Associate Professor of the same university), and Dr. Mohammad Basyuni (ISME member and Professor of

Utara University, Sumatra) cooperated in the research.

Our research was carried out in cooperation with 10 officials of the Mangrove Information Center (MIC) and other government agencies in Bali who had participated in training courses organized by JICA and implemented by ISME from 1995 to 2012, namely: “Sustainable Management and Conservation of Mangrove Ecosystems” and “Environmental Education for Sustainable Development: Conservation of Coastal Ecosystems and Livelihoods.”



Mangrove forest of Mangrove Information Center in Bali

Website renewal of “Mangroves and Their Friends”

One of ISME's websites, “Mangroves and Their Friends,” which was designed and launched in 2000 for children and the general public, is now being renewed.

The renewed website includes pictorial book of mangroves in Japan, through which users can look up mangroves by their names or by the shapes of their roots, leaves, flowers, etc. It also includes pictorial book of fauna that inhabits mangrove forests, and “Mangrove Knowledge Column” that provides easy-to-understand explanations about mangroves. The renewed website will also include photo galleries of mangroves from various parts of the world. The English version of the website is under preparation, but we hope to be able to go online shortly.



Top image of the website “Mangroves and their friends”

TroCEP welcomes information on mangrove species distribution

TroCEP (Tropical Coastal Ecosystems Portal) is an online database, organized by National Institute for Environmental Studies (NIES) and ISME, being operated on the web since 2015. <http://www.nies.go.jp/TroCEP/index.html>

It aims to depict distribution information of 74 mangrove species and hybrids in line with the World Atlas of Mangroves published in 2010. Locality information on species distribution is being collected through scientific papers, books, reports, websites, field confirmation and personal communications, but more work is needed to generate accuracy especially where less documentation is available.

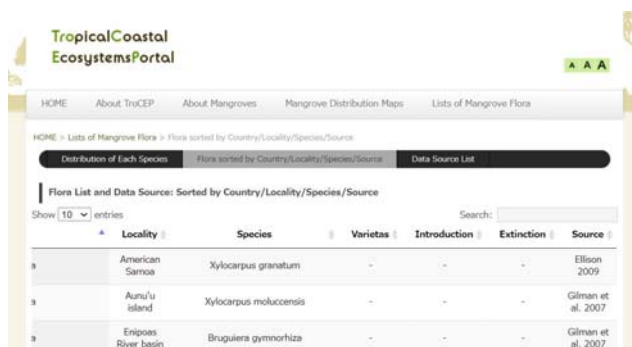
If you have information on mangrove species distribution, please send us:

- 1) Name of the species;
- 2) Its photographs taken at the location;
- 3) Year of the photo taken;
- 4) Latitude and longitude, and/or name of location where the species exists;

For example: 16°24'S 122°55'E (Australia, Dampier Peninsula); 06°03'55"N 80°10'33"E (Sri Lanka, Gin River Estuary)

- 5) Height of the tree if possible;
- 6) Your name and e-mail address (your name will appear on the TroCEP under the "Data source" as "Personal communication," but we will not disclose your personal information).

Or if you can share with us your paper(s) containing information on the location of mangrove species, we would be much grateful. We appreciate your inputs. Please contact us at isme@mangrove.or.jp or TroCEP@nies.go.jp



Locality	Species	Varietas	Introduction	Extinction	Source
American Samoa	Xylocarpus granatum	-	-	-	Ellison 2009
Aunu'u Island	Xylocarpus moluccensis	-	-	-	Gilman et al. 2007
Enipos River basin	Bruguiera gymnorhiza	-	-	-	Gilman et al. 2007

List of mangrove flora shown on the TroCEP

Some major events

2023

January: Gave lecture to training course participants for ASEAN countries organized by Japanese Ministry of Environment

July: 19th Meeting of SFD/ISME PSC, Sapporo, Hokkaido, Japan

August: Visited Bali, Indonesia, for SATREPS project; Gave a lecture to local children in Iriomote Island; Visited Mauritius for Mangrove survey and discussion

September: Gave a lecture to students of Japanese School in Abu Dhabi, UAE

October: Gave a lecture to JICA trainees from Palau in Iriomote Island, Okinawa, Japan

November: Visited Mauritius for mangrove survey

December: Mangrove planting on Ishigaki Island by H.E. Ambassador of the UAE to Japan and his family; Attended 29th Annual Meeting of Japan Society for Mangroves, Tokyo

2024

February: 20th Meeting of SFD/ISME PSC, Sandakan, Sabah, Malaysia

July: Visited Malaysia for survey on mangrove carbon storage in Sabah

August: Conducted study tour for Japanese graduate/undergraduate students and high school teachers in Sabah, Malaysia

September: Visited Indonesia for mangrove survey

October: Organized Eco-tour for families of Tokio Marine & Nichido Fire Insurance Co. Ltd., in Iriomote Island, Okinawa, Japan; Visited Mauritius for Mangrove survey and meeting

November: Mangrove planting on Ishigaki Island by H.E. Ambassador of the UAE to Japan and his family

December: Attended 30th Annual Meeting of Japan Society for Mangroves, Tokyo; Mangrove planting in Abu Dhabi by high school students from Ishigaki Island



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Volume 20, No.1 (February 2022)

Criteria affecting the performance of three mangrove rehabilitation projects conducted by ISME by Baba, S., Chan, H.T., Kainuma, M., Oshiro, N., Kezuka, M., Kimura, N. & Inoue, T.

Volume 20, No.2 (July 2022)

Botany, distribution, phytochemistry and bioactivities of mangrove plants VI: *Avicennia rumphiana* by Chan, E.W.C., Tangah, J., Kezuka, M. & Chan, H.T.

Volume 20, No.3 (August 2022)

Botany, uses, phytochemistry and bioactivities of mangrove associates I: *Hibiscus tiliaceus* by Wong, S.K. & Chan, E.W.C.

Volume 20, No.4 (September 2022)

Some notable bioactivities of *Rhizophora apiculata* and *Sonneratia alba* by Chan, E.W.C., Lim, W.Y., Wong, C.W. & Ng, Y.K.

Volume 21, No.1 (June 2023)

Mangrove and other coastal plant species with anti-cancer properties: An overview by Chan, E.W.C., Wong, S.K., Inoue, T., Kainuma, M., Kezuka, M. & Chan, H.T.

Volume 22, No.1 (July 2024)

Mangrove molluscs: An overlooked faunal community with ecological and economic importance by Kantharajan, G., Kathirvelpandian, A., Ibrahima, A., Rasheeq, A., Kumar, T.T.A., Sarkar, U.K.

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Individual membership:

JPY2,000 (approx. US\$20) annually

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JPY20,000 (approx. US\$206)

Institutional membership:

JPY25,000 (approx. US\$257) annually

Please renew your membership if you have not renewed for the year 2024. We accept Visa and MasterCard. For further information, contact ISME Secretariat. Your donation to the Society would also be welcomed.

News from your country

If you have any news from your country or your work concerning mangrove ecosystems that you wish to publish in the ISME newsletter, please forward a brief write-up to ISME Secretariat.

Send articles/publications of mangrove to ISME Secretariat

ISME is organizing GLOMIS. Please send articles/publications concerning mangroves and mangrove ecosystems to ISME Secretariat.

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