

IRBM PROJECT NEWSLETTER

EDITION 11 | APR-JUN 2026



GEF/UNDP/ASEAN Project on Reducing Pollution and Preserving Environmental Flows in the East Asian Seas through the Implementation of Integrated River Basin Management (IRBM) in ASEAN Countries

Managing the Flow: Practical Tools, Training and Partnerships





Nam Hin Reservoir located in Oudomxay Province, one of the provinces encompassing Nam Tha River Basin, in Lao PDR (Photo by Orange Omengan/PEMSEA)

The second quarter of 2026 focused on technical capacity development, regional and global knowledge exchange, and basin-level implementation under the GEF/UNDP/ASEAN Integrated River Basin Management (IRBM) Project. Activities during the quarter included the Regional Training on the REWEFe Toolkit and Water–Energy–Food–Ecosystem (WEFE) Nexus Application; knowledge exchange on marine litter governance and Source-to-Sea cooperation; and the formalization of partnerships for Project implementation in the Kedah River Basin, Malaysia.

In April, representatives from the six ASEAN Member States participating in the Project took part in the

hybrid Regional Training on the REWEFe Toolkit and WEFE Nexus Application, held in Manila, Philippines. Participants were introduced to the Project’s basin-level WEFE Nexus assessment and the REWEFe Toolkit comprising the User Manual and Guide. Through lectures, discussions, and hands-on exercises, they examined the governance and technical dimensions of applying the Toolkit, developed user-defined scenarios, and analyzed trade-offs and synergies across the WEFE nexus. The training also explored how scenario results can support cross-sector coordination and inform IRBM strategies and action plans, pilot project development, and stakeholder discussions at the river basin level.

Regional knowledge exchange continued in May through the PEMSEA Resource Facility's participation in the International Summer Course on Marine Litter Management, Policy and Integrated Coastal Governance in the East Asian Seas Region, hosted by IPB University in Bogor, Indonesia. Ms. Nancy Bermas, Regional Project Manager of the IRBM Project, delivered a lecture on cross-country mapping of marine litter governance and management. She introduced PEMSEA's Framework for Sustainable Development of Coastal and Marine Areas and presented the Manila Bay experience to illustrate how partnerships among governments, academic institutions, the private sector, development partners, civil society organizations, and communities can support coordinated responses to managing marine litter. She also discussed how the IRBM Project and the MOF/PEMSEA Marine Plastics Official Development Assistance (ODA) Project contribute to marine litter and plastic waste management.

Also in May, the Project shared its experience in applying the Source-to-Sea approach during the webinar, *Source-to-Sea Cooperation: Practical Guidance for Implementation in Transboundary Basins*, jointly organized by GEF IW:LEARN and the Secretariat of the UN Water Convention at UNECE. During the practitioner panel, Ms. Bermas explained how the IW:LEARN guidance has informed the Project from concept and project development through implementation, monitoring, evaluation, and learning. She highlighted its application in identifying priority flows and basin hotspots; conducting stakeholder mapping and governance baseline assessments; strengthening multisectoral and inter-agency river basin mechanisms; developing and

implementing pilot projects to address the priority flows; and establishing monitoring, evaluation, and learning systems, including indicator-based State of River Basin Reports. She also emphasized the need for more on-the-ground examples showing how integrated river basin management, integrated coastal management, and marine protected area networks can be linked through the broader Source-to-Sea framework.

In June, the Project officially launched implementation in the Kedah River Basin following the signing of a Memorandum of Agreement between the Universiti Sains Malaysia and the PEMSEA Resource Facility and a Memorandum of Understanding among the Department of Irrigation and Drainage Malaysia, the Kedah State Water Resources Board, and Universiti Sains Malaysia. The agreements formalized partnerships to strengthen the coordinating mechanism for IRBM implementation, undertake a baseline assessment of the river basin and associated coastal areas of Kedah State, and prepare a State of River Basin Report and IRBM Strategic Action Plan. The Project will also support the development and implementation of pilot projects addressing priority concerns, including flooding, declining water quality, and sedimentation.

This edition also features a closer look at the Project's WEFE Nexus assessment, and the application of the REWEFe Toolkit supported by a User Manual and Guide. The feature explains how these resources contribute to understanding basin conditions, assessing future scenarios, and informing IRBM strategies, action plans, and potential interventions across the seven priority river basins.

GEF/UNDP/ASEAN IRBM Project Launches Implementation in the Kedah River Basin



Penang, Malaysia – The IRBM Project officially launched implementation activities in the Kedah River Basin following the signing of a Memorandum of Agreement (MoA) between the Universiti Sains Malaysia (USM) and the PEMSEA Resource Facility (PRF) on 16 June 2026.

The MoA was signed by Professor Ir. Dr. Mariatti Jaafar @ Mustapha, Campus Director of the Tuanku Syed Sirajuddin Engineering Campus, representing the Vice Chancellor of USM, and Ms. Aimee Gonzales, Executive Director of PRF.

A Memorandum of Understanding (MoU) among the Department of Irrigation and Drainage Malaysia (DID), the Kedah State Water Resources Board (KSWRB),

and Universiti Sains Malaysia (USM) was also signed during the strategic partnership signing ceremony. The MoU was signed by Datuk Ir. Mohamad Radzi bin Abdul Talib, Director General of DID, Mr. Syed Amaluddin Hafeez Syed Musa, Director of KSWRB, and Professor Ir. Dr. Mariatti Jaafar @ Mustapha on behalf of USM.

The signing ceremony marked the formal start of IRBM Project implementation in the Kedah River Basin, an initiative that aims to develop sustainable and effective governance and management mechanisms to address key priority issues in the basin which includes flooding, declining water quality, and sedimentation.

According to DID, the Kedah River Basin is one of the pioneering river basins in Malaysia to adopt the integrated river basin management approach through the support from the Danish International Development Agency. The Kedah River Management Plan was then developed and subsequently reviewed and strengthened by KSWRB.

The Project partners will work together to strengthen the coordinating mechanism for IRBM implementation in the Kedah River Basin, undertake a baseline assessment of the river basin and associated coastal areas of Kedah State, and prepare a State of River Basin Report. The Project will also support the development of an IRBM Strategic Action Plan building on the Kedah River Basin Management Plan that incorporates both structural and non-structural measures in line with DID requirements, as well as the development and implementation of pilot projects to address priority river basin issues.

In addition to basin-level activities, partners from the Kedah River Basin will participate in regional

knowledge-sharing and capacity development initiatives under the Project, including the IRBM Governance Forum in Lao PDR, the Regional Workshop on Environmental Monitoring and Reporting in Indonesia, the Regional IRBM Training of Trainers to be co-organized with DID in Malaysia, and the 11th GEF Biennial International Waters Conference in Bali.

Representatives from the partner institutions underscored the importance of collaboration, technical expertise, and shared governance in advancing integrated river basin management in the Kedah River Basin.

In his welcome remarks, Datuk Ir. Mohamad Radzi Bin Abdul Talib, Director General of DID, said, *"Today's ceremony brings together our partners in a strengthened collaboration. USM contributes knowledge, research and innovation. KSWRB provides state leadership and governance. And finally, DID Malaysia contributes technical expertise and national coordination."*



(L-R) Dr. Chang Chun Kiat and Professor Mariatti Jaafar @ Mustapha, representing Universiti Sains Malaysia (USM) with Ms. Aimee Gonzales, Executive Director of the PEMSEA Resource Facility (PRF), and Ms. Nancy Bermas, Regional Project Manager of the IRBM Project, during the MOA signing between USM and PRF.



Datuk Ir. Mohamad Radzi Bin Abdul Talib, Director General of DID, delivers his welcome remarks during the strategic partnership signing ceremony.

Photos by Orange Omengan/PEMSEA

Echoing the importance of partnership and shared responsibility, Mr. Syed Amaluddin Hafeez Syed Musa, Director of KSWRB, said, *"The strategic collaboration being formalized today demonstrates our shared commitment to environmental sustainability and responsible water resources management. It reflects our recognition that effective river basin management can only be achieved through strong partnerships, knowledge sharing, and active stakeholder participation."*

Highlighting the Project's contribution to ongoing river basin management efforts in Kedah State, Ms. Aimee Gonzales, Executive Director of PRF, said, *"The Project is complementing DID's flagship programme on IRBM that aims to develop a holistic and practical IRBM Strategic Action Plan for Kedah River Basin which identifies critical actions that contribute to four key objectives: ensuring sufficient water, ensuring clean water, reducing flood risk, and enhancing environmental conservation."*

Speaking on the role of academic institutions in supporting implementation, Professor Ir. Dr. Mariatti Jaafar @ Mustapha, Campus Director of the Tuanku Syed Sirajuddin Engineering Campus, USM, said, *"The university is confident that this Project will be successfully implemented and will serve as an important reference in strengthening policies and best practices towards a more integrated and sustainable approach to water resource management in Malaysia."*



Mr. Syed Amaluddin Hafeez Syed Musa, Director of KSWRB, highlights the importance of partnership and stakeholder participation in advancing river basin management.



Ms. Aimee Gonzales, Executive Director of the PEMSEA Resource Facility, discusses the Project's support for the development of the Kedah River Basin IRBM Strategic Action Plan.



Professor Ir. Dr. Mariatti Jaafar @ Mustapha expresses USM's commitment to supporting integrated and sustainable water resource management in Malaysia.

Photos by Orange Omengan/PEMSEA



Ms. Larifah binti Mohd Sidik of the Department of Irrigation and Drainage presented updates of Malaysia's participation in regional and basin-level activities under the Project and outlined the country's next steps.

Representatives from DID, Ministry of Energy Transition and Water Transformation, GEF Operational Focal Point for Malaysia from the Ministry of Natural Resources and Environmental Sustainability, KSWRB, Kedah State Economic Planning Unit, the River Engineering and Urban Drainage Research Centre of USM, strategic partners, and members of the media attended the ceremony.

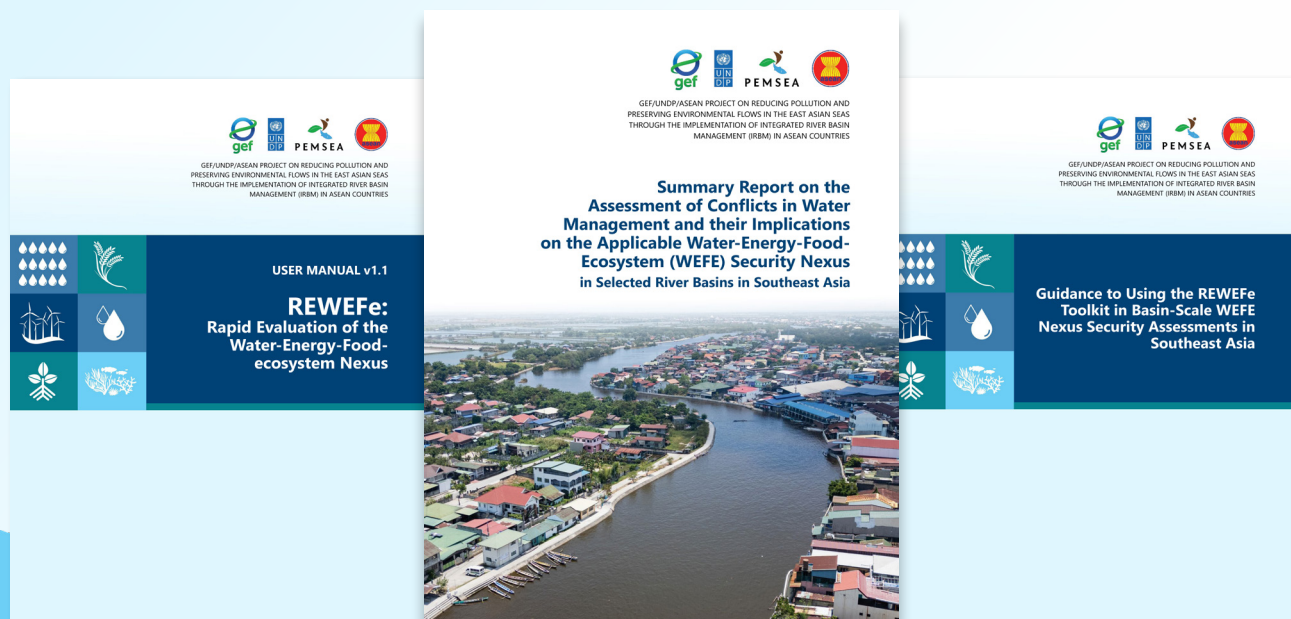
Following the signing ceremony, project partners convened to discuss implementation arrangements and opportunities for collaboration to support effective project delivery through 2027. Discussions also explored USM's designation as an IRBM Learning Center under the umbrella of the PEMSEA Network of Learning Centers.



Representatives from partner institutions after the discussion on implementation arrangements and priority activities for the Kedah River Basin under the IRBM Project.

Photos by Orange Omengan/PEMSEA

Applying the WEFE Nexus in Integrated River Basin Management and Planning



Water, energy, food, and ecosystems are closely interconnected. Water supports agriculture, energy production, and ecosystem health, while energy is required to extract, treat, and distribute water and to produce, process, and transport food. Decisions in one sector can therefore affect the availability and condition of resources in the others.

The Water–Energy–Food–Ecosystem (WEFE) Nexus provides an approach for examining these relationships and identifying trade-offs and synergies across sectors. Under Component 1 of the IRBM Project, a basin-level WEFE Nexus assessment was undertaken that aims to contribute to the baseline understanding of their

linkages in the seven priority river basins and provide inputs to the State of River Basin reporting.

The assessment examined competing water uses and users, current and future water management issues, climate-related risks and vulnerabilities, and their implications across the four WEFE domains. It was informed by an extensive literature review and multisectoral consultations conducted in the seven river basins from June to August 2025. Stakeholders discussed water, energy, agriculture, environment, and risks and vulnerabilities; reviewed existing measures and proposed recommendations for strengthening IRBM.

The resulting *Summary Report on the Assessment of Conflicts in Water Management and their Implications on the Applicable Water–Energy–Food–Ecosystem Security Nexus in Selected River Basins in Southeast Asia* presents basin profiles, common and basin-specific conflict themes, and the implications of identified issues across the four domains. It also identifies management strategies and recommendations for river basin planning.

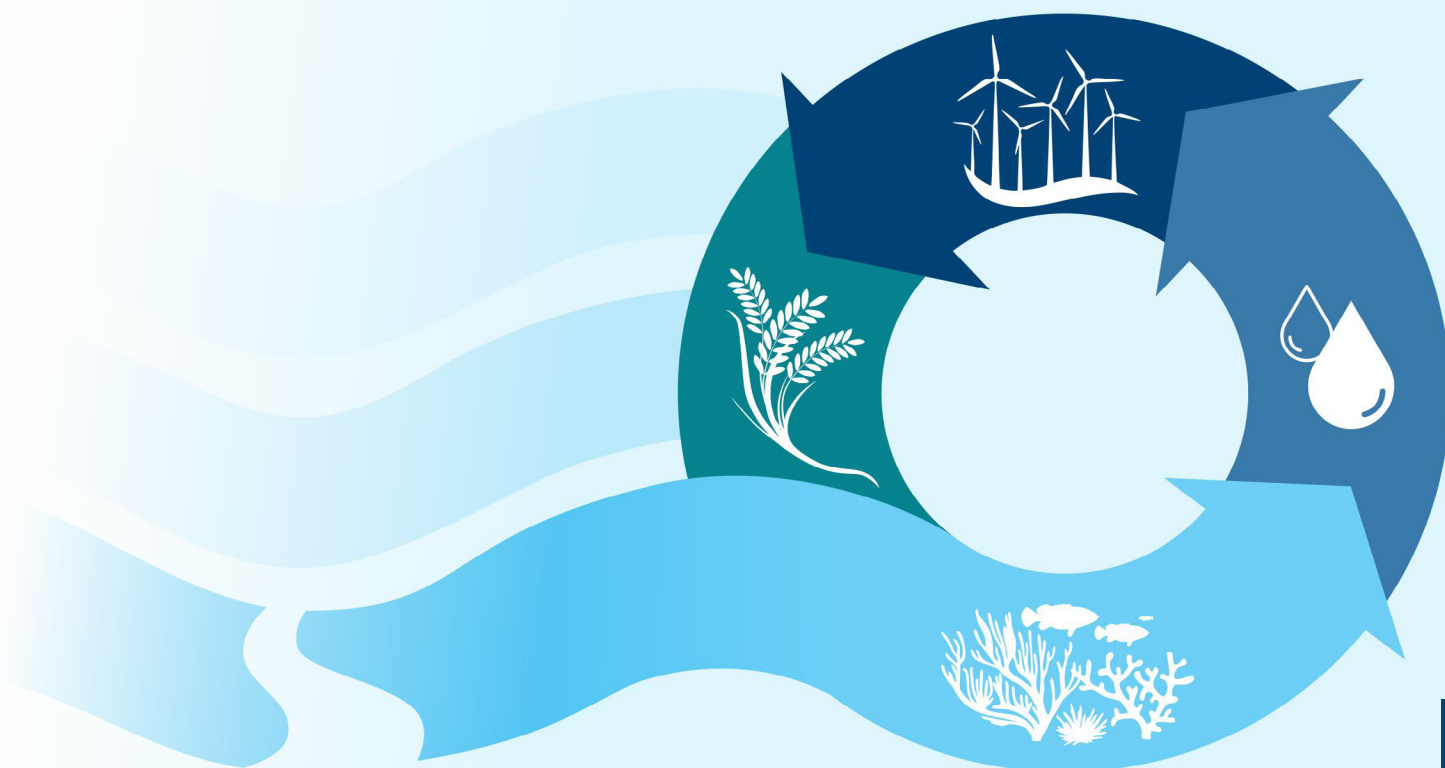
To complement the assessment, the Project tailored the REWEFe – Rapid Evaluation of the Water, Energy, Food and ecosystem – Toolkit, developed by FutureWater, to the objectives of the IRBM Project and the context of Southeast Asian river basins. The Toolkit was demonstrated and validated in Ciliwung River Basin, Nam Tha River Basin and Pasac-Guagua Watershed.

REWEFe is an Excel-based, quantitative scenario-assessment tool that allows users to compare baseline conditions with user-defined “what-if” scenarios. It can examine how different scenarios such as changes in irrigation, aquaculture, land use, wastewater reuse, ecosystem restoration, or climate conditions

may affect water, energy, food, and ecosystems. By making potential trade-offs, synergies, and unintended consequences more visible, the results of the assessment can inform IRBM strategies and action plans, pilot project design, stakeholder discussions, and cross-basin learning.

Two supplementary resources support its application. The *User Manual: REWEFe—Rapid Evaluation of the Water-Energy-Food-ecosystem Nexus v1.1* explains the model, functions, and technical steps for operating the Toolkit. *The Guidance to Using the REWEFe Toolkit in Basin-Scale WEFE Nexus Security Assessments in Southeast Asia* provides considerations for configuring the Toolkit and interpreting its results at basin scale and within the regional context.

These resources were introduced to representatives from the six participating ASEAN Member States and selected members from the PEMSEA Network of Learning Centers and PEMSEA Network of Local Governments during the Regional Training on the REWEFe Toolkit and WEFE Nexus Application held in Manila, Philippines, in April 2026.



GEF/UNDP/ASEAN IRBM Project Conducts Regional Training on the REWEFe Toolkit and WEFE Nexus Application



Participants of the Regional Training on the REWEFe Toolkit and WEFE Nexus Application held on 21–24 April 2026 in Manila, Philippines. (Photo by Orange Omengan/PEMSEA)

Manila, Philippines – The IRBM Project conducted the Training on the REWEFe Toolkit and Water–Energy–Food–Ecosystem (WEFE) Nexus Application in Southeast Asia from 21–24 April 2026. Conducted in a hybrid format, the regional training brought together representatives from national and local governments, partner universities, and Project national coordinators from the six participating ASEAN Member States—Cambodia, Indonesia, Lao PDR, Malaysia, the

Philippines, and Viet Nam. Representatives from the PEMSEA Network of Learning Centers and the PEMSEA Network of Local Governments across the East Asian Seas region also participated online.

A total of 28 participants from the six participating ASEAN Member States attended the training on-site, comprising 16 women and 12 men.

Representatives from the following institutions attended the training:

CAMBODIA	• Ministry of Environment • Royal University of Phnom Penh • Royal University of Agriculture
INDONESIA	• Ministry of Environment • IPB University
LAO PDR	• Department of Water Resources of the Ministry of Agriculture and Environment • National University of Laos
MALAYSIA	• Department of Irrigation and Drainage of the Ministry of Energy Transition and Water Transformation • Kedah State Water Resources Board
PHILIPPINES	• Department of Environment and Natural Resources - Environmental Management Bureau - Ecosystems Research and Development Bureau - River Basin Control Office - Foreign-Assisted and Special Projects Service • National Water Resources Board • Department of Agriculture–Bureau of Soils and Water Management • Provincial Governments of Cavite and Pampanga • Cavite State University • Guimaras Environment and Natural Resources Office • University of the Philippines Visayas
VIET NAM	• Da Nang Environmental Protection Agency • University of Da Nang



Representatives from Cambodia, Indonesia, Lao PDR, Malaysia, the Philippines and Viet Nam take part in plenary discussions and hands-on exercises.

Photos by Orange Omenjan/PEMSEA



Ms. Nancy Bermas, Regional Project Manager of the IRBM Project, presented the Project's overview including the WEFE Nexus Approach for ASEAN River Basins.

The training aimed to strengthen participants' capacity to apply the WEFE Nexus Approach within IRBM processes. Participants were introduced to the Project's basin-level WEFE Nexus assessment and its resulting Summary Report, which presents findings from assessments of the seven priority river basins across Southeast Asia.

Participants received training on the governance and technical dimensions of applying the REWEFe Toolkit using the WEFE Nexus training package, consisting of the Toolkit comprising the User Manual and Guide.

Through lectures, interactive discussions, and hands-on exercises, participants were trained in translating policy goals and sector strategies into user-defined scenarios and analyzing trade-offs and synergies across water, energy, food, and ecosystems. Sessions also covered key IRBM governance principles, cross-sector coordination mechanisms, and the WEFE Nexus framework.

The training emphasized the science-policy interface and how scenario analysis can support more informed and integrated decision-making in river basin planning and management.



The training was facilitated by the Project's Regional Project Management Unit, with technical sessions led by FutureWater experts Dipankar Aich (left) and Brecht D'Haeyer (right).



Photos by Orange Omengan/PEMSEA

IPB University Hosts International Summer Course on Marine Litter and Integrated Coastal Governance



The panelists and speakers of the Conference on Blue Economy. (Photo courtesy of IPB University, Indonesia)

Bogor, Indonesia –The IPB University through the Center for Coastal and Marine Resources Studies (CCMRS) and International Research Institute for Maritime, Ocean and Fisheries (LRI i-MAR) organized the Summer Course on Marine Litter Management, Policy and Integrated Coastal Governance in the East Asian Seas (EAS) Region as part of its commitment to promoting regional capacity development. PEMSEA Resource Facility (PRF) participated in the Summer Course to provide support to CCMRS, the Secretariat of the PEMSEA Network of Learning Centers (PNLC) and contribute to strengthening cross-country learning among the students and deepen understanding on marine litter and plastics management.

The Summer Course was held at the Baranangsiang Campus of IPB University on 18-24 May 2026.

It was attended by graduate and undergraduate students and early career researchers from nine countries, namely China and Hong Kong SAR, Indonesia, Malaysia, Philippines, Afghanistan, Australia, Germany, Pakistan and Turkey. Lectures were provided by invited resource speakers from the national government and universities and research institutions across the EAS Region (i.e., IPB University, Hong Kong Polytechnic University, East China Normal University, Guangdong Ocean University, Institute of Science Tokyo, Deakin University, University of Tasmania and University Malaysia Terengganu), including ATSEA and PRF. The Course design used an integrated learning approach consisting of pre-training stages, face-to-face learning, field practice, and independent assignments.

Ms. Nancy Bermas, Regional Project Manager of the IRBM Project, represented PRF and delivered a lecture focusing on cross-country mapping of marine litter governance and management. In line with the preparation of case studies required from the participants, Ms. Bermas introduced PEMSEA's Framework for Sustainable Development of Coastal and Marine Areas to demonstrate how responses to marine litter at governance and management levels can be organized along with the necessary monitoring, evaluation and reporting, including alignment with global (i.e., SDGs), regional plans of action (i.e., ASEAN Regional Action Plan for Combating Marine Debris, COBSEA's Regional Action Plan on Marine Litter and the SDS-SEA) and national and local development plans. The Manila Bay case example was used to showcase how partnerships and collaboration among the national and local governments, academe, private sector, development partners, NGOS/POs and local communities can be promoted to address the marine litter problem across the bay. Ms. Bermas also shared how the two regional projects of PRF, the IRBM Project and the Republic of Korea's Ministry of Oceans and Fisheries/PEMSEA ODA

Project on Reducing Marine Plastics in the East Asian Seas Region are contributing to marine litter and plastic waste management.

The course participants also attended the Opening and Plenary Sessions of the 2nd International Conference on Blue Economy and Techno-Socio Environmental Innovation that IPB University was organizing at the same time at the Taman Kencana campus. The Plenary Session covered presentations on Blue Foods focusing on innovations on seaweed aquaculture in Australia; Indonesia's potential for microalgae as a strategic bioresource, the required research support and innovation, and the urgency to establish ASMI (Asosiasi Praktisi Mikroalga Indonesia), a national platform to unite stakeholders in the microalgae ecosystem and opportunities for networking through the Asian Seaweed Network. The session also included a presentation on artificial reef technologies for coastal ecosystem restoration using oyster shells in Hong Kong. The conference provided added insights to the course participants on wide ranging topics with clear focus on finding practical solutions to achieving sustainable development in the East Asian Seas region.



Students, early career researchers, and lecturers attended the Summer Course at the Baranangsiang Campus of IPB University on 18-24 May 2026. (Photo courtesy of IPB University, Indonesia)

IRBM Project Shares Southeast Asia's Experience on Source-to-Sea Cooperation

21 MAY 2026, 09:30–10:30 CEST

WEBINAR

Source-to-Sea Cooperation

Practical Guidance for Implementation in Transboundary Basins


RUTH MATHEWS,
Role title


SHEIKH ROKON
Bangladesh


NANCY BERMAS
IRBM; PEMSEA


TASSOS KROMMYDAS
Drin Core Group;
GWP-MED


JARED BOSIRE
WIO-SAP;
UNEP Nairobi Convention



WATER
CONVENTION

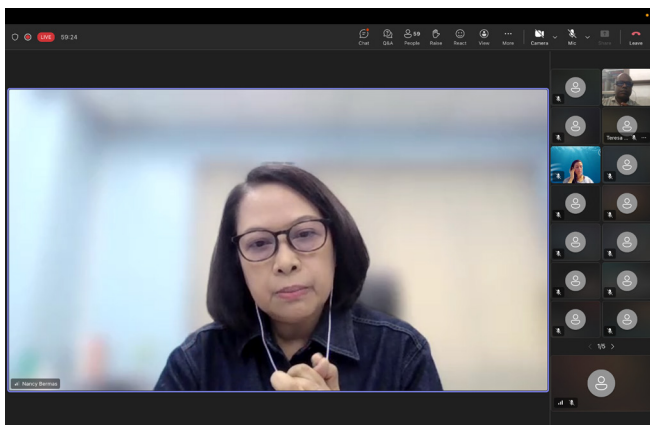
Infographic courtesy of GEF IW:Learn

The IRBM Project shared its experience in applying the Source-to-Sea approach during the webinar, *Source-to-Sea Cooperation: Practical Guidance for Implementation in Transboundary Basins*, jointly organized by GEF IW:LEARN and the Secretariat of the UN Water Convention at UNECE on 21 May 2026.

The webinar introduced two complementary publications: the UN Water Convention's *Guidance Note for the Implementation of Source-to-Sea Management in Transboundary Basins* and the IW:LEARN "How To" *Guidance on Applying the Source-to-Sea Approach in GEF International Waters*

Projects. The publications provide practical guidance, checklists, and reflection questions for applying the approach throughout the project cycle.

Ms. Nancy Bermas, Regional Project Manager of the IRBM Project, joined the practitioner panel to share how the IW:LEARN guidance has informed the Project from concept and project development through implementation, monitoring, evaluation, and learning. With the Project now in its fourth year of implementation, she noted that it has applied to varying degrees the four project phases and six steps outlined in the IW:Learn guidance.



Ms. Bermas highlighted five areas in which the guidance has supported the Project: identifying priority flows, their sources of alteration, and their social, economic, and environmental impacts; defining river basin boundaries and identifying hotspots for pilot project development; conducting stakeholder mapping and analysis at the regional, national, subnational, and basin levels; undertaking governance baseline assessments to guide the establishment and strengthening of multisectoral and inter-agency river basin mechanisms; and developing pilot projects and monitoring, evaluation, and learning systems, including indicator-based State of River Basin Reports.

She explained that the Project builds on government-mandated mechanisms and aligns its governance

arrangements with national and local policies to reduce duplication and support the continuity of Project efforts. Pilot projects are also being developed based on assessments of priority flows, sources of alteration, and related impacts, while solution templates are intended to facilitate the transfer of experiences to other river basins.

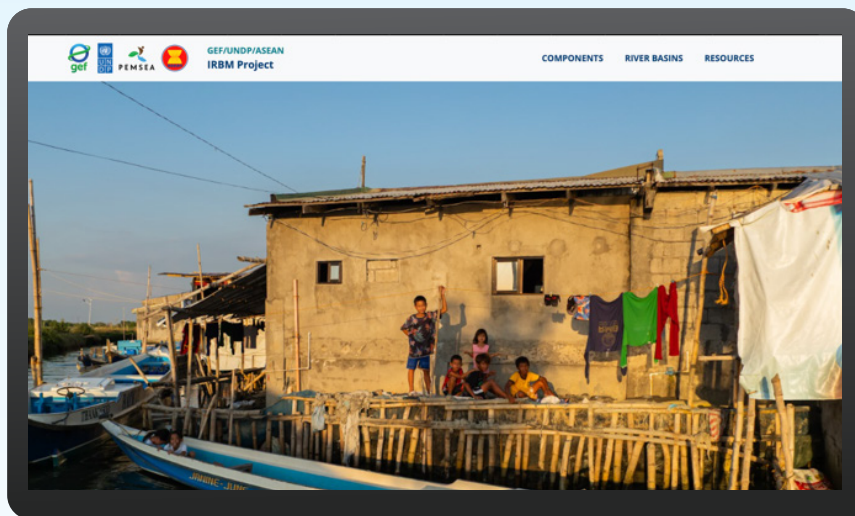
Ms. Bermas also highlighted the role of the ASEAN Working Group on Water Resources Management as a platform for disseminating Project outputs, lessons, and good practices across ASEAN. She emphasized the need to generate and share more on-the-ground Source-to-Sea implementation experiences, including examples of how integrated river basin management, integrated coastal management, and marine protected area networks can be linked under the broader Source-to-Sea framework.

WATCH THE IW:LEARN WEBINAR HERE 



Get the latest updates from the IRBM Project e-Portal at PEMSEA's SeaKnowledge Bank!

The IRBM e-portal on PEMSEA's SeaKnowledge Bank offers a dedicated space for sharing key resources, updates, and stories from our work across the region's river basins.



Website Features

- ✓ About the project
- ✓ News updates
- ✓ Featured stories
- ✓ River basin profiles
- ✓ Publications



irbm.seaknowledgebank.net



Upcoming Events



Regional Workshop on Environmental Monitoring and Reporting in Support of Integrated River Basin Management Program Development and Implementation

August 10-14, 2026 | Depok City, Indonesia

Regional Training of Trainers on Integrated River Basin Management

September 28-October 2, 2026 | Kuala Lumpur, Malaysia



11th GEF International Waters Conference

October 26-30, 2026 | Bali, Indonesia



About the Integrated River Basin Management (IRBM) Project

Supported by the [Global Environment Facility](#), the Integrated River Basin Management (IRBM) Project is working to set-up functional management mechanisms in priority river basins of six ASEAN countries to reduce pollution and sustain freshwater environmental flows as well as adapt to climate change vulnerabilities. The regional Project is being implemented by the [United Nations Development Programme Bangkok Regional Hub](#), and executed by [Partnerships in Environmental Management for the Seas of East Asia](#), in collaboration with [ASEAN](#).

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Learn more about
the IRBM Project

