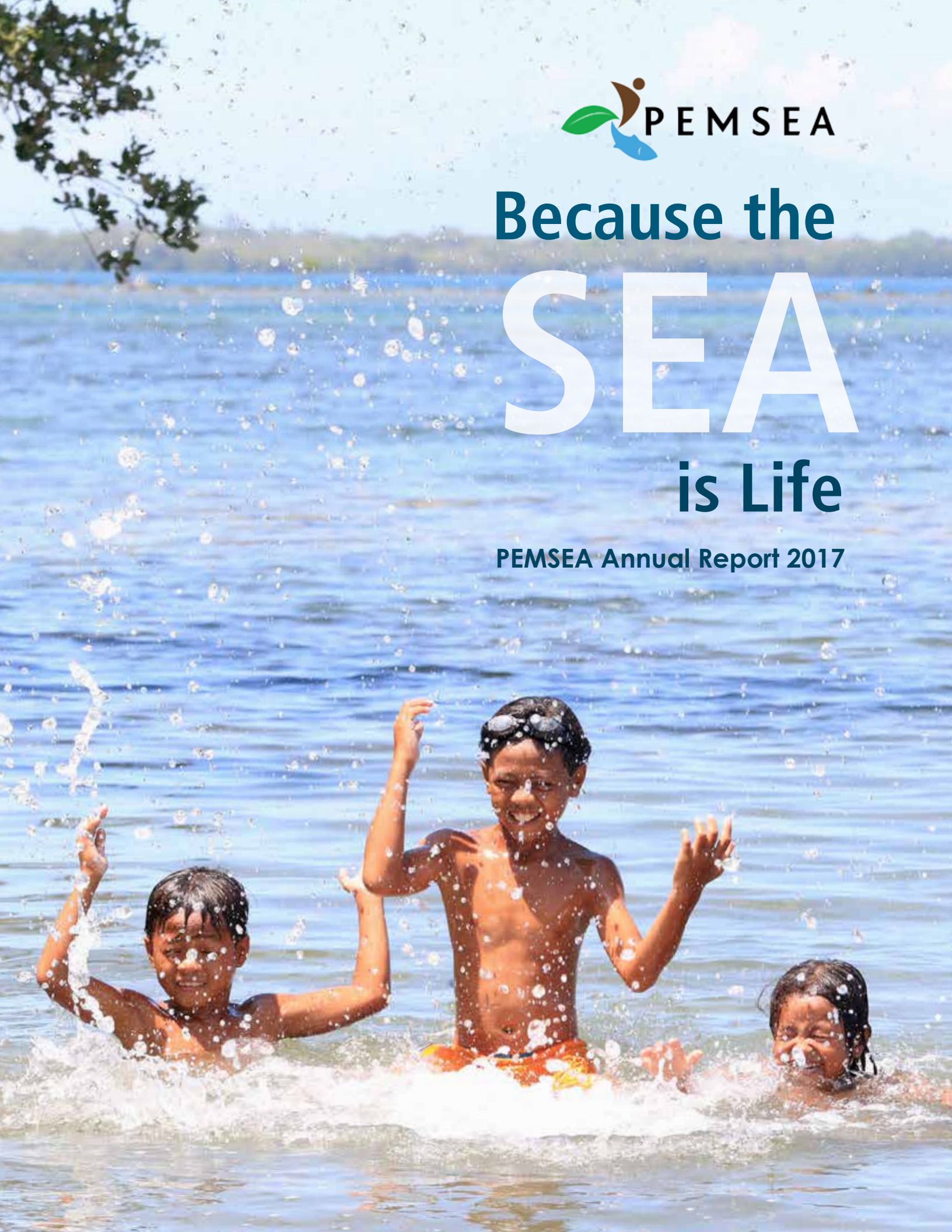




Because the SEA is Life

PEMSEA Annual Report 2017





Cover photo by PEMSEA/J. Castillo
Photo by PEMSEA/J. Cabriles



Because the
SEA
is Life

Partnerships in Environmental Management
for the Seas of East Asia (PEMSEA)

Because the Sea is Life: PEMSEA Annual Report 2017

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25 YEARS OF PARTNERSHIPS

PEMSEA brings together country and non-country partners to collaborate on coastal and marine conservation in East Asia, with results ranging from specific trainings in support of implementing integrated coastal management, to historic national policy



The year 2018 marks a quarter of a century of meaningful, far-reaching work for Partnerships in Environmental Management for the Seas of East Asia (PEMSEA)—25 years of empowering communities, building local government’s capacity, and developing strategies for people, resources, and actions to come together in support of the sustainability of the oceans and coasts, anchored on the principles of integrated coastal management (ICM).

The Seas of East Asia, also called the East Asian Seas (EAS), are a global center of marine biodiversity, home to almost a third of the world’s mangroves, and a third of the planet’s seagrass beds and coral reefs. With a combined coastline of over 230,000 km, it is a center of economic growth, home to the mammoth industries and resource bases of China and Japan, and a major link for 90 percent of international shipping trade. Covering the waters of Brunei Darussalam, Cambodia, the People’s Republic (PR) of China, the Democratic People’s Republic (DPR) of Korea, Indonesia, Japan, Lao People’s Democratic Republic (PDR), Malaysia, the Philippines, the Republic of (RO) Korea, Singapore, Thailand, Timor-Leste, and Vietnam, it is home to 2.1 billion people.

PEMSEA serves as an arena for regional collaboration, among these countries as well as with other regions and interest groups around the world, on sustainable resource use. It helps governments work together on global environmental concerns; strengthens linkages among international agencies, NGOs, funding institutions, and other entities; develops opportunities for investment and financing; and engages with the local communities, the business sector, and the academe.

PEMSEA upholds its vision of HOPE—Healthy Oceans, People, and Economies—achieved through its mission of fostering and sustaining healthy and resilient oceans, coasts, communities, and economies across the Seas of East Asia, through integrated management solutions and partnerships.

It carries out this mission through advisory and project services, knowledge and capacity building for organizations, certification services for coastal management and performance, and facilitation and secretariat work for the partnership and on coastal and ocean investment efforts.



A history of collaborations

In 1993, the seeds for what would become PEMSEA were planted with the project on Prevention and Management of Marine Pollution in the East Asian Seas, launched by the Global Environment Facility (GEF), implemented by the United Nations Development Programme (UNDP), and executed by the International Maritime Organization (IMO). Thus followed years of working together on all fronts, as well as a holistic approach to ICM. The project's second phase led to the official birth of PEMSEA, which would cover six large ecosystems and 12 countries to adopt the landmark Sustainable Development Strategy for the Seas of East Asia (SDS-SEA).

PEMSEA's mandate would be reinforced and expanded through the years, capped by its role as implementing partner of the five-year GEF-funded Project on Scaling Up the Implementation of the SDS-SEA, until 2019. PEMSEA continues to work with 11 country partners and 22 non-country partners, comprising the East Asian Seas (EAS) Partnership Council, to achieve its strategic targets. The Partnership Council governs PEMSEA and determines its strategic directions, programs, and policies through the SDS-SEA. An Executive Committee ensures that the decisions of the council are implemented. It guides the PEMSEA Resource Facility (PRF), the coordinating facility working with the country and non-country partners to aid countries in the application of ICM. The SDS-SEA post-2015 target is 25 percent coverage of the region's coastline and contiguous watershed areas with ICM programs by the year 2021.



Photo by PEMSEA/J. Zaldivar





From words into action

Message from the Council Chair and Executive Director

Dr. Antonio La Viña and Ms. Aimee Gonzales

We are pleased to share PEMSEA's Annual Report for 2017.

The year 2017 was a transition year for the oceans. The year before, 2016, was a big year on commitments to protect and manage the oceans, and 2017 was the year to start translating the rhetoric into action on the United Nations Sustainable Development Goals (SDGs) on all levels—global, regional, national, and local. PEMSEA began putting together a comprehensive implementation plan for the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA), as well as developing a monitoring tool to track our performance and assess progress in implementing our collective commitment to protect, manage, restore, and sustain the Seas of East Asia.

Some of PEMSEA's notable actions include strengthening SDS-SEA implementation through the codification of integrated coastal management (ICM)/coastal and marine protection at the national levels; promoting the blue economy as alternative business model; raising awareness on innovative financing on ocean and coastal initiatives; and working on programmatic, operational, and financing options to ensure PEMSEA's sustainability.

In 2017 we also conducted extensive capacity building for various stakeholders and local government networks. These activities were deemed critical to strengthen capacity to carry on the implementation of integrated management solutions, from institutional arrangements to addressing specific issues on climate adaptation to conservation financing, especially at the local government level.

We firmly believe in the importance of sharing knowledge and best practices, and learning and managing adaptively on the ground. The theories and training manuals mean little, unless they are adapted on the ground and are impacting people's lives. Some progress is evident from our partners' and stakeholders' experiences in developing policies and practical solutions, for example, to plastics pollution. We still have a long way to go, as the problems are complex and the situation is dynamic and ever changing, especially with climate change and growing populations. Better monitoring and tracking is needed to account for positive changes in the water, and in the lives of coastal communities. Through these collaborative efforts in the East Asian region, we hope that we can help secure healthy oceans, resilient communities, and sustainable blue economies, and truly move as one with the global ocean agenda.

Partners in progress

In the past year, country partners have marked notable achievements, with support from the PRF, in areas related to policy and legislation for ICM.

Timor-Leste. Different sectors came together to formulate a National Ocean Policy (NOP) in 2017, supported by the PRF and the Australian National Centre for Ocean Resources and Security (ANCORS). ICM was identified as a key strategy of this policy to address threats to coastal and marine resources, with the Government of Timor-Leste committing to the policy in support of SDG 14. The NOP is pursuing this tack through continued collaboration, securing national jurisdictions and exercising sovereign rights, safeguarding the rights of Timorese people to their marine resources, moving towards a blue economy, building up natural ecosystem defenses and services, investing in people, and working against climate change.

Vietnam. Implementation continues for the Law on Marine and Island Resources and Environment, which took effect on 1 July 2016. In 2017, the Ministry of Natural Resources and

A National Ocean Policy for Timor-Leste

By **Acacio Guterres**

Director General for Fisheries, Ministry of Agriculture and Fisheries, Timor-Leste

The oceans cover 70 percent of earth's surface, a source of subsistence, food, jobs, and recreational activities. They are also vital to trade, and are essential to today's world economy.

At the national level, the sea represents an important element for us all in terms of nature and its resources, which, together with the fact that Timor-Leste is an island state, means that the sea must be at the center of the definition of development policies in the country, which has not happened to date.

The sea is a central aggregator and a determining factor in the creation of a competitive blue economy, to ensure the conservation and protection of marine resources and biodiversity for generations to come.



Participants in the stakeholder consultation workshop for the development of a National Oceans Policy for Timor-Leste, 16 February 2017, Dili, Timor-Leste

Environment (MONRE) approved a circular on technical regulations for ICM, the result of national consultations and workshops. The circular covers 29 coastal provinces and supports the targets of the National ICM Strategy (2017-2030) and the National ICM Action Plan (2017-2020), under the auspices of a National Coordinating Committee.

The Philippines. ICM is one of the priority legislative agendas to be institutionalized as part of a national strategy for the sustainable development of coastal and marine areas in the Philippine Development Plan for 2017-2022. The plan was approved by the Board of the National Economic and Development Authority (NEDA) in February 2017. House Bill No. 5672, sponsored by Representative Maria Lourdes Acosta-Alba, was filed on 18 May 2017 at the 17th Congress and crafted with technical help from PEMSEA, supports this plan. The Bill is currently being reviewed by an inter-agency Technical Working Group in coordination with the Special Committee on Climate Change at the Lower House.

ICM as national strategy in the Philippines



By

Rep. Malou Alba-Acosta

Sponsor of the ICM Bill in the Lower House, Republic of the Philippines

It is timely to institutionalize integrated coastal management (ICM) to facilitate the management of coastal and marine resources. This holistic planning tool embodies a system of cooperative management and intersectoral coordination that seeks to address complex activities such as deforestation, mining, fishing, shipping, public health, and recreation. With ICM, we can establish an ecological approach to managing the country's coastal and marine environment. We would be taking the first step in gearing up towards sustainable development, achieving food security, and mitigating the impacts of climate change.



Ang Pulo Mangrove Sanctuary in Calatagan, Batangas

PEMSEA's non-country partners, meanwhile, have concentrated on specific areas to contribute to the broader objectives of healthy and resilient coasts and people under the SDS-SEA.

Oil spill management. The Global Initiative Southeast Asia (GISEA) program was launched in 2013 by the International Petroleum Industry Environmental Conservation Association (IPIECA), in partnership with the International Maritime Organization (IMO). GISEA has assisted Southeast Asian countries in capacity building for oil spill preparedness and response. The program launched a new website in September 2017, www.gisea.org. Last 1 July to 4 August 2017, a workshop on the implementation of the Association of Southeast Asian Nations (ASEAN) Regional Oil Spill Contingency Plan (ROSCP) was organized by the Ministry of Transport of Malaysia and covered the ASEAN Regional Framework, as well as oil spill incident response and management, shoreline surveys, an equipment deployment exercise, and site visits.

GISEA supported the Philippines National Oil Spill Contingency Plan (NOSCP) Inter-agency Workshop, which was spearheaded by the Philippine Coast Guard and participated in by Oil Spill Response Ltd. (OSRL). In October, OSRL hosted the Regional Industry Technical Advisory Group (RITAG), a technical information sharing platform among member oil spill response organizations.

Ocean governance training. The International Ocean Institute has been training young and mid-career practitioners in effective ocean governance and ICM since 1972, developing interdisciplinary skills in law, natural and social sciences, economics, and policy making. An annual Training Program on Ocean Governance for the Western Pacific Region is held in PR China, while another on Regional Ocean Governance Framework, Implementation of the United Nations Convention on the Law of the Sea (UNCLOS) and its Related Instruments in the Southeast Asian Seas and the Indian Ocean is held every year in Thailand.

Marine protected areas (MPAs) and marine debris. In 2017, the Korean Marine Environment Management Corporation-National Oceanic and Atmospheric Administration (KOEM-NOAA) capacity building

program conducted training for sustainable fisheries in MPAs. This was specifically for MPA stakeholders from RO Korea. The same year, a workshop on Capacity Building for Marine Debris Prevention and Management in the Asia-Pacific Economic Cooperation (APEC) Region Phase I was also held. The five-day training included information sharing, policy formulation, social and economic impact analysis, and technical training on preventing, reducing, and removing marine debris according to each area's specific needs

From data to disasters. The North West Pacific Action Plan (NOWPAP) had a very busy year. A report on the "Assessment of major pressures on marine biodiversity in the NOWPAP region" was prepared by its Special Monitoring & Coastal Environmental Assessment Regional Activity Centre (CEARAC), which also conducted a feasibility study for seagrass distribution in the region. Its Data and Information Network Regional Activity Centre continued to maintain various environmental databases. The Marine Environmental Emergency Preparedness and Response Regional Activity Centre offered environmental emergency assistance, pollution reporting, and information sharing on oil spills and their impacts on wildlife, and led a maritime disaster conference in Korea attended by some 200 experts. NOWPAP's Pollution Monitoring Regional Activity Center developed a Regional Overview on Ecological Quality Objectives (EcoQO) targets and indicators for use by member states, and continued its research on microplastics in Russian rivers. Finally, NOWPAP held its 2017 Joint NOWPAP-TEMM (Tripartite Environment Ministers Meeting among China, Japan, and Korea) Workshop on Marine Litter Management and its 2017 International Coastal Cleanup (ICC) Campaign in Toyama, Japan.

ICM work in Japan. In 2017, the Ocean Policy Research Institute, Sasakawa Peace Foundation (OPRI-SPF), served as adviser, collaborator, and training organizer for seven ICM model sites in Japan:



Tourism attraction in Iriomote Island, Japan

the cities of Miyako, Obama, Shima, and Bizen, Sukumo and Omura Bays, and Taketomi town. In Bizen, in particular, a branding council was established as part of the city's master plan to revive coastal industries. In Taketomi, a plan on ocean policy is undergoing revision to align with the national policy, covering nature conservation, livelihood, industrial development, traditional culture, and development of border islands.

Research on marine environment management.

Plymouth Marine Laboratory (PML) is focused on research in sustainable marine environment management. In 2017, it started the Blue Communities program, with funding from the Global Challenges Research Fund (GCRF), to involve international partners in initiatives for sustainable marine resource use.

In collaboration with the National Oceanography Centre (NOC) and PEMSEA, PML made a field visit and undertook an initial scoping of the management priorities, available information, gaps, and challenges for sustainable development of the oceans and coasts in Kep, Cambodia and Danang, Vietnam in 2017. During the visit, PML also discussed and agreed on, with relevant stakeholders, the focus and scope of a

research project to be implemented in Cambodia and Vietnam, as part of Addressing Challenges of Coastal Communities through Ocean Research in Developing Economies (ACCORD), a project supported by the United Kingdom that focuses on sites in Cambodia and Vietnam for marine ecosystem resiliency and adaptive management.

ICM in local governments. The PEMSEA Network of Local Governments (PNLG) stayed true to its Strategic Action Plan for 2016 to 2021. Twelve representatives of member countries attended the Seminar on Green Ecological Aquaculture for ASEAN Countries in Xiamen, China. Three new members were welcomed, bringing PNLG's local government membership to 48. The PNLG Forum was held in Hainan, PR China, with the relevant theme of "Conservation to Ecological Restoration of Coastal Areas for Blue Economy," and where experts shared information on how ecological restoration can support marine environment protection, coastal tourism, sustainable fisheries, and natural disaster management. In an important step, the network also interviewed stakeholders on their experience of 20 years of ICM implementation in Xiamen; the interviews will be published in a book sharing successes and lessons learned, to be launched during Xiamen World Ocean Week in late 2018.

Progress in the Yellow Sea—and renewed

involvement of DPR Korea. Phase II of the Yellow Sea Large Marine Ecosystem (YSLME) Project was launched on 11-13 July in Seoul, RO Korea. During the first meetings of the Management Science and Technical Panel (MSTP) and the Interim Commission Council (ICC), a three-year work plan and budget (for 2017-2019), as well as the work plans of six regional working groups (RWGs), were approved. The Deputy Minister of the Ministry of Oceans and Fisheries (MOF) of RO Korea, the Vice Mayor of Incheon City, and the Regional Technical Advisor of the UNDP/GEF spoke at the launch, which was attended by some 50 regional representatives.

On July 14, the YSLME Project organized a marine protected areas (MPA) seminar in Ganghwa Tidal Flat Center, with the North-East Asian Marine Protected Areas Network (NEAMPAN) of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) and the Korean Marine Environment Management Corporation (KOEM) of RO Korea. The Ganghwa County Governor and more than 80 attendees from PR China, Japan, and RO Korea were at the event to help raise awareness on ecosystem services for the protection of species such as the endangered Black-Faced Spoonbill, and shared their experiences in MPA management in Japan, PR China, and RO Korea.

Also significant was the move to revitalize the involvement of DPR Korea in the YSLME Project, with the objective of having the updated Strategic Action Plan (SAP) jointly adopted by the three countries bordering the Yellow Sea (RO Korea, DPR Korea, and PR China). The Hans Seidel Foundation, a German political organization committed to promoting democracy, peace, and development, is working with the YSLME Project on regional initiatives for peace and development of the Korean Peninsula.

Protecting our coasts and coastal communities.

Mangroves for the Future (MFF)—with funding from the Swedish International Development Cooperation Agency (SIDA), the Danish International Development Agency (DANIDA), the Norwegian Agency for Development Cooperation (NORAD), and the Royal Norwegian Embassy in Thailand—is working in 11



Over 74,000 mangroves have been rehabilitated at target sites in Java, Indonesia since 2016 as part of MFF small grant facility projects. (Photo by IUCN)

countries in Asia to support coastal ecosystems and ultimately, sustainable development. Co-chaired by the International Union for the Conservation of Nature (IUCN) and the United Nations Development Programme (UNDP), the project uses applied knowledge, community empowerment, and better governance for healthy ecosystems, better livelihoods, and greater resilience to climate change.

Since 2004, MFF has brought together over 250 regional and national partners, empowered more than 400,000 men and women, and implemented nearly 380 projects, especially through its small grants facility. MFF signed a letter of cooperation with PEMSEA in 2017, with the aim of achieving Sustainable Development Goal 14, “Life below water.” Under development, in partnership with PEMSEA, is a sustainable business roadmap for blue economy enterprises and for a multi-stakeholder regional alliance between governments and businesses.

MFF hosted the US ASEAN Conference on Marine Environment Issues in September 2017, attended by over 50 representatives from the public and private sectors. The organization has also extended its ICM training course to member countries. In 2017, the Royal University of Phnom Penh completed the first national ICM course in Cambodia, while Myanmar, Sri Lanka, and Pakistan are integrating the course into regular curriculums. MFF also published *Turning Tides*, a documentation of “stories of change” for knowledge sharing on coastal conservation and restoration.



Photo by PEMSEA/B. Recirido



THE ICM APPROACH

PEMSEA has adapted the integrated coastal management (ICM) approach, which contributes to an overarching and comprehensive regional sustainable development strategy for the protection of marine and coastal environments and resources

A practical system

Managing the world's highly pressured coastal areas today has become more complex than ever, with multiple and interrelated factors to consider, such that a sectoral approach is no longer effective nor adequate. Integrated coastal management (ICM) emerged as a practical new approach covering economic elements, human activity, laws, and land use. "The ultimate purpose of ICM," writes Chua Thia-Eng in *The Dynamics of Integrated Coastal Management*, "is, therefore, to increase the efficiency and effectiveness of coastal governance in terms of its ability to achieve the sustainable use of coastal resources, and of the services generated by the ecosystems in the coastal areas." In short, coastal management today means going far beyond the physical, environmental, and other boundaries of the coasts themselves—extending far up and downstream to other beneficiaries and affecting neighboring ecosystems such as forests and mountains—to systematically bring all efforts and targets together.

ICM strengthens coordination between various coastal and environmental groups, to support their existing agreements and collaborations. It reminds stakeholders of the complexity of coastal systems, and how everyone should be involved in their collective management. ICM takes into account all manner of information—economic, social, cultural, ecological—to ensure the relevance of management measures to all who use coastal services and resources, while keeping the ecosystem healthy. Finally, ICM also takes into account all available human and financial resources to come up with an optimal, interdisciplinary approach in addressing any issues.

ICM application occurs in a progressive cycle of six stages: preparation, initiation, development, adoption, implementation, and refinement and consolidation. Stakeholders range from national and local governments and NGOs, to the academe, businesses, donors, and the coastal community residents themselves.



The ICM cycle

PEMSEA has enabled many successful applications of ICM in the EAS, models that are now being extensively replicated. China, for example, which began with just one ICM site in the early 1990s, now has 22 active ICM sites along its coastline. To date, ICM covers more than

18 percent of the region's coastline, benefiting millions and achieving localized as well as broader targets in habitat protection, disaster prevention, pollution and waste management, water management, and food security and livelihood.





Photo by PEMSEA/J. Castillo

Major thrusts of the SDS-SEA

The SDS-SEA regional framework consists of three priority programs: Climate Change Adaptation/Disaster Risk Reduction and Management; Marine Biodiversity Conservation and Management; and Pollution Reduction and Waste Management. Initiatives based on these thrusts are ongoing in some of PEMSEA's partner countries.

In **Lao PDR**, a report on value chain analysis for agricultural produce and livelihood management was completed for selected villages in Houay Champi, Champasack Province.

After the signing of the Memorandum of Understanding (MOU) on the establishment of the Verde Island Passage (VIP) Marine Protected Area (MPA) and Law Enforcement Network (LEN) in the **Philippines** in March, collaborative meetings were held in May 2017, as well as training on the application of the conservation planning software, Marxan, in the area. This was carried out with Conservation International (CI) Philippines and the Korea Maritime Institute (KMI). With financial support from KMI, Seoul National University (SNU) conducted mangrove forest mapping and assessment in the VIP, a PEMSEA priority site for ICM implementation in the Philippines, and in San Juan, Batangas province.

At the Manila Bay Governor's Forum, attended by leaders of eight provinces (Bataan, Bulacan, Cavite, Laguna, Nueva Ecija, Pampanga, Rizal, and Tarlac) in March 2017, an MOU was signed establishing the Manila Bay Network of Local Governments. The goals: solid and liquid waste reduction, and project monitoring and evaluation for the rehabilitation of Manila Bay. A training workshop on watersheds in Batangas was conducted as part of the Batangas Bay Watershed Rehabilitation and Sustainable Development Project.

For climate change and disaster risk reduction, **China** completed an assessment of vulnerabilities in the city of Dongying in Feb 2017. The potential socioeconomic impact of sea level rise was also mapped out in Chinese.

Working for cleaner coasts and marine areas, Koh Kong Province in **Cambodia** completed baseline assessment

for solid waste management. The three coastal provinces, Kampot, Kep, and Koh Kong, initiated the development of a long-term coastal strategy and its implementation plan. The development of a strategic pollution reduction management plan was also initiated in Preah Sihanouk Province.

In **Timor-Leste**, baseline and vulnerability assessments were carried out in pilot sites in Liquica, Manatuto, and Dili. State of the Oceans and Coasts (SOC) reports were completed and coastal strategy development initiated in three municipalities. GEF Small Grants Programme (SGP) projects, developed with the support of PEMSEA, and implemented in Liquica, included mangrove rehabilitation in Vaviquinia and Ulmera, and ecological farming practices to prevent coastal erosion and degradation. A project on integrated aquaculture and poultry farming and fish post-harvest processing in Vatuvou was supported by the government and the Oriental University of Timor Leste (UNITAL).

In **Indonesia**, baseline and vulnerability assessments were conducted in 2017 for pilot sites on habitat rehabilitation and alternative livelihood development in Tangerang Regency; habitat protection, pollution reduction, and waste management in Sukabumi Regency; MPA management effectiveness improvement through ICM in Bontang City and Bali Province; and sustainable fisheries and alternative livelihood in East Lombok Regency.



Validation of the baseline and vulnerability assessment with the community in Vaviquinia Village, Liquica Municipality, Timor-Leste. (November 2017)



One of the fishing communities in Koh Rong archipelago

Nations at work

Some of PEMSEA's country partners have taken steps in implementing the SDS-SEA in coastal communities. Covering 100 percent of its 440-km coastline with ICM programs, **Cambodia** is implementing work in four coastal provinces: Kampot, Kep, Koh Kong, and Preah Sihanouk. In 2017, the ICM Project Management Office staff joined training workshops organized by PEMSEA, the International Union for Conservation of Nature (IUCN), the Xiamen Municipal Government, the Government of RO Korea, and others. ICM program coordinators from Kampot, Kep, and Koh Kong joined the regional traineeship program in Manila, where they observed good practices and discussed coastal management issues such as habitat protection, fisheries and livelihood, water use and supply management, and pollution reduction on site visits to Bataan, Cavite, and Batangas provinces in the Philippines.

Preah Sihanouk Province takes pride in having the first officially designated Marine Fisheries Management Area (MFMA) in Koh Rong archipelago. Experiences and lessons learned on the implementation of the Koh Rong MFMA were shared during the PNLG Forum in Sanya, China in

Landmark legislation in Cambodia

The Ministry of Environment (MOE) of Cambodia is spearheading the effort to develop and pass landmark legislation, the Environmental Code. "Cambodia has many existing laws—forestry, nature conservation, fishery—but these are not very instructive, especially in terms of the responsibilities of the various departments and ministries," says H.E. Minister Say Samal of MOE. "The Environmental Code integrates these concerns and identifies the duties and roles of relevant departments and sectors." With the fast development in Cambodia, the passage of an Environment Code is both timely and significant, adds Minister Samal. "It not only looks into environmental conservation, but considers peace, sustainability, and inclusive economic growth."

December 2017. The Royal University of Phnom Penh (RUPP), PEMSEA's ICM Learning Center in Cambodia, participated in two PEMSEA regional training events in 2017, and is now helping Koh Kong Province set up its solid waste management program.

A National Environmental Strategy and Action Plan (NESAP 2017-2023) was completed in 2017, declaring its vision “to strengthen enabling conditions and leverage for the environmental and natural resources development and conservation for sustained and stable social and economic growth in Cambodia.” Complementing this will be the much-awaited Environment Code, a landmark legislation being pushed by the Ministry of Environment as a new framework for natural resources management and considers peace, sustainability, and inclusive economic growth for the Cambodian people.

A Basic Plan on Ocean Policy, the foundation for ICM implementation, has been under development in **Japan** since 2016, the same year an Integrated Coastal Environment Management Project Team (ICM PT) was established. The team led the initiation of a “Plan, Do, Check, Act” (PDCA) cycle for ICM implementation in communities.

In 2017, the Assessment Report Based on the Law Concerning Special Measures for Conservation of the Environment of the Ariake and Yatsushiro Sea was released, which focused on adaptive approaches based on scientific information, and widespread stakeholder participation. In 2017, Ise Bay and Hiroshima Bay also revised their Bay Renaissance Plans, with renewed focus on public private partnerships.

The Ministry of Environment’s “Link and Support Forests, Villages, Rivers and Coasts (mori-sato-kawa-umi) project continues to tap sites for recycling activities. The second phase of the Fisheries Agency’s “Measures on Realization of Multi-functional Fisheries” project for conserving aquatic ecosystems is from 2016 to 2020. In Taketomi town, a Taketomi Basic Plan on Ocean Policy 2017-2018 has been linked to national policy.

In the **Philippines**, the Manila Bay Office of the Environmental Management Bureau (EMB) of the Department of Environment and Natural Resources (DENR) carried out a number of projects in 2017. For water quality monitoring, 19 stations were checked for fecal coliform count along bathing beaches on Manila Bay, while nine bay-wide stations were observed for other parameters such as dissolved oxygen, salinity, temperature, and conductivity. Seventeen river systems discharging into the bay were checked for compliance with water quality standards, while industrial/commercial monitoring was carried out to ensure establishments’ compliance with DENR standards on effluence and pollution.

Water quality management areas (WQMA) in the country were set for designation, in collaboration with the National Water Resources Board (NWRB), and for



Mangrove sanctuary in Cavite, Philippines

identification as watersheds, river basins, or water resources regions. These areas will be managed by local stakeholders, led by local government units.

The “Adopt-an-Estero” Program brings together public and private interests, especially local community partners, under the auspices of the DENR for cleaning and maintaining inlets or urban canals.

The EMB has also been backing scientific research on freshwater and marine sites, specifically on pollution assessment in the Pampanga, Cavite, and Pasig Rivers, phyto-technology and the use of bacteria and plants to help clean water bodies, and sedimentation rate. Finally, Manila Bay stakeholders had a say in the Operational Plan for the Manila Bay Coastal Strategy (OPMBCS). Training covered various skills such as knowledge of environmental law, oil spill preparedness, water quality monitoring, wastewater and solid waste management, and climate change.

Under the auspices of the Department of Water Resources (DWR), the PRF continues to assist **Lao PDR** in developing the National Guideline or Implementing Rules and Regulations for fees on natural resources, particularly water. The Guideline was drafted in 2017 and is now being reviewed by national agencies, to be completed in 2018. In addition, the updated Water and Water Resources Law was passed by the National Assembly in May 2017; a national strategy for water is in place until 2025, and an action plan, until 2020.

Indonesia’s National Ocean Policy was adopted on February 2017 through Presidential Decree No. 16 of 2017. The policy has seven pillars, namely: 1) the management of marine resources and the development of human resources; 2) maritime security, law enforcement and safety at sea; 3) ocean governance and institution; 4) economic

and infrastructure of marine sector and of prosperity enhancement; 5) management of the ocean space and protection of marine environment; 6) maritime culture; and 7) maritime diplomacy. The national policy consists of a National Document and a Plan of Action to synergize programs and activities of ministries and non-ministerial government institutions in carrying out ocean development.

In **Thailand**, the Law on Marine and Coastal Resources Management was implemented at the national and provincial levels, including establishment of inter-agency and multisectoral coordination committees for marine and coastal resources management, and preparation of status reports on marine and coastal resources.

In Chonburi Province, an ICM Action Plan for 2017-2019 was prepared by 26 coastal municipalities. To determine environmental impacts to recreation and fisheries, Saensuk Municipality and PEMSEA’s ICM Learning Center in Burapha University (PNLC-BUU) initiated a research study on heavy metals in waters of Bangsaen beach and mussel farms along the coast of Saensuk. Si Chang Municipality also initiated discussions to reduce pollution from shipping activities in their sea area with the support of PNLC-BUU.



The Water Resources Law was passed by the National Assembly of Lao PDR.

Managing water of every color in Lao PDR

The updated Water and Water Resources Law was passed and approved by Lao PDR's National Assembly in May 2017, superseding the previous law of 1996. "The importance of the Water Law is that it covers the comprehensive management of blue, green, and black waters in the country," says Dr. Inthavy Akkharath, Director General of the Department of Water Resources, Ministry of Natural Resources and Environment, and PEMSEA's National Focal Point in Lao PDR. Dr. Akkharath explains how "blue water" covers the mitigation of potential disasters due to water, such as floods and droughts. "Green water" refers to proper allocation of available water resources (such as groundwater) to different sectors, while "black water" addresses the management of wastewater discharge. There is still a lack of information and database for groundwater resources, and on the use and allocation of water to different sectors in the country—a deficiency which the law hopes to rectify.



Champi River in Sedone River basin



Photo by PEMSEA/K. Eco

THE GLOBAL AGENDA

PEMSEA aligns its vision with the United Nations Sustainable Development Goals (SDGs), supports blue economy initiatives and investments, galvanizes an international network of local governments, and pushes for a reporting system on the state of the oceans and coasts to show benefits and progress in the implementation of the SDS-SEA



Worldwide goals, local actions

The United Nations (UN) Sustainable Development Summit was held on 25-27 September 2015 in New York City, where the battlecry “Transforming Our World: The 2030 Agenda for Sustainable Development” was first heard. The gathering outlined 17 goals and 169 targets to be aspired for over the next 15 years, to mobilize governments, citizens, and businesses to fight poverty, banish inequalities, uphold human dignity, tackle climate change, and protect the planet, in the spirit of global inclusivity.

The Sustainable Development Goals (SDGs), also known as the Global Goals, align with a number of strategies of the SDS-SEA, the basis for action within the framework of PEMSEA.

SDG 14, Life Below Water, is about the conservation and sustainable use of oceans, seas, and marine resources. It is part of the SDS-SEA strategy to “preserve” endangered marine species and threatened resources, and to “sustain” biodiversity and fisheries in the EAS. It is a bottom-up approach to ecosystem management that applies ICM in its broadest sense, beginning in small coastal communities and municipalities, and bringing in local, national, and regional leadership for lawmaking. The EAS, after all, accounts for 41.8 percent of global fish catch, and is the source of 82.7 percent of global aquaculture products.

SDG 11, Sustainable Cities and Communities, is in response to a global population that is estimated to double by 2050, and to the unsustainable practices that persist along with such growth. It synchronizes with the SDS-SEA strategy to “develop” blue economies, with PEMSEA partners pursuing national policies to encourage blue economy investment, to lobby with governments to make environmental investment part of their programs, and to engage more private sector investors in this field.



SDG 13, Climate Action, acknowledges the tremendous effects of climate change, especially on less-developed countries, and encourages initiatives to address them. The SDS-SEA strategy to “adapt” focuses on such management and disaster risk reduction, recognizing that preparation is now a critical part of ICM, especially in vulnerable coastal areas.

SDG 6, Clean Water and Sanitation, addresses this most fundamental of human needs, essential to health and life, in the face of a diminishing, compromised supply. It aligns with the SDS-SEA strategies to “sustain” integrated water resource management and viable water quality, and to “protect” water sources through pollution reduction and waste management. Consistent with ICM, this is done on various levels, from watersheds and major sources to coastal communities and end users.

Finally, in relation to the SDS-SEA’s “implement” and “communicate” strategies, SDG 17, Partnerships for the Goals, is about harnessing collective efforts to power sustainable development. This is planning for the long term, with eyes set on the implementation of the SDS-SEA, international agreements and collaborations, constant capacity building, consistent SOC reporting, and communication through networking, information sharing, and empowerment under all conditions. PEMSEA concretizes efforts through its Network of Learning Centers (PNLC), hubs of technical and scientific knowledge for ICM.

A better business model

“We understand the Blue Economy to be a practical ocean-based economic model using green infrastructure and technologies, innovative financing mechanisms, and proactive institutional arrangements for meeting the twin goals of protecting our oceans and coasts and enhancing its potential contribution to sustainable development, including improving human well-being, and reducing environmental risks and ecological scarcities.”

- Second paragraph, Changwon Declaration, signed 2 July 2012
at the Fourth Ministerial Forum, Changwon City, RO Korea



Photo by PEMSEA/J. Cabriles

Investing in the ocean

The EAS Congress 2012 had the theme “Toward an Ocean-based Blue Economy: Moving Ahead with the Sustainable Development Strategy for the Seas of East Asia,” and paved the way for the adoption of this development paradigm.

With the global ocean economy registering a conservative annual value of US\$2.5 trillion, it behooves world economies to look for a more prudent, effective way to use these resources. The EAS region is largely dependent on its coasts and oceans, making it essential to work for the sustainable development and use of such coastal resources to drive national economies as a source of food, energy, medicines, and resources for manufacturing, as a conduit of trade and transportation, and for recreation and tourism. The blue economy approach promotes the sustainable

use of such ocean resources for economic growth and improved livelihoods and jobs, while preserving the health of oceans and ecosystems.

Thus, in the EAS, the adoption of sustainable fisheries, climate-smart aquaculture, ecotourism, green ports, and marine renewable energy all require innovation and a shift from more traditional approaches to a blue economy perspective that covers more than just business for profit. Protection of habitats, biodiversity, and the marine environment must happen alongside viable investments in new, clean technologies and infrastructure for long-term goals of food, energy, and water security, and progress in the face of climate change.



The Blue Economy Forum

The first Blue Economy Forum was held in Bangkok, Thailand on 14-15 November 2017, and was co-organized by PEMSEA, the Thailand Research Fund (TRF), and the Department of Marine and Coastal Resources (DMCR), Ministry of Natural Resource and Environment (MONRE) of Thailand.

The forum served as a venue for information sharing to enable more governments, businesses, and other entities to work for sustainable and inclusive coasts and oceans.

Representatives from industries, the academe, NGOs, and governments gathered together for the two-day forum, which included among its highlights the presentation of 10 national SOC reports and four subregional/large marine ecosystem (LME) reports. Focusing on the ocean economy, valuation of ecosystem services, ocean health, and blue economy initiatives, the SOCs highlighted the critical role of marine ecosystems in economic development and resiliency across the EAS region, and the implications for policy, planning, management, and investments.

The entire ocean economy is measured as the sum of the economic activities of ocean-based and ocean-related industries, together with the natural assets, goods, and services of marine ecosystems upon which these industries depend, and which people rely on for food, income, livelihood, recreation, shoreline protection, and climate regulation. The contribution of the ocean economy to national GDPs in the EAS region is substantial, ranging from 3.3 percent in RO Korea to an enormous 87 percent in Timor-Leste. The ocean economy, as reported by eight countries in the region in their draft SOC reports, was estimated to be worth around \$1.42 trillion in value added. Around 50 million people (in five

EAS region countries) work in ocean industries. It was also recognized that coastal and marine ecosystems provide important goods and services, most of which are not accounted for in GDP. For seven countries in the region, the estimated value of coastal and marine ecosystems is around \$531 billion.

Given these initial findings, PEMSEA supports developing an ocean economy-environment accounting system, including valuation of both ecosystem services and environmental damage. The Blue Economy Forum highlighted the importance of the SOC reporting process—and of continuously improving this process—as a systematic and optimum tool for planning, monitoring, and evaluating individual countries and their work in pursuing the ocean agenda, SDS-SEA targets, and other international commitments. As the Forum participants stated, “We cannot manage what we cannot measure.”

With continuing environmental degradation and changing climate, “business as usual” is no longer an option. The need to consider economic growth and sustainable oceans as complementary—and not contradictory—is clear. Informed action, innovations, and partnerships are now needed in the EAS region.

It is essential to engage other sectors and agencies beyond the environmental ministries, and to include planning, finance, statistics, fisheries, tourism, ports, and other agencies with ocean-related functions, as well as scientists, civil society, and the business sector, to better gauge ocean contributions, impacts, tradeoffs, and solution options. Work should extend beyond traditional silo-based approaches. The development of SOC reports helps to foster collaboration among these entities.

To promote the institutionalization and sustainability of a blue economy, it is crucial to have effective regional and sub-regional ocean governance mechanisms; efficient use of science in formulating policies and plans; capacity development; and comprehensive operationalization of the ocean agenda at the local, national, and regional levels. No “one-size-fits-all” solution exists, given the availability of a wide range of models, technologies, and instruments to suit the various needs and capacities of different countries and sectors.

Financing a vision

In 2017, PEMSEA continued to host forums on sustainable ocean management, which connected PEMSEA’s work in East Asia to international efforts to develop new approaches to SDG financing. The United Nations Conference to Support the Implementation of Sustainable Development Goal 14, or the UN Ocean Conference, was held 5-9 June at the UN Headquarters in New York. PEMSEA participated and contributed to various discussions, such as the “Partnership Dialogue on Managing, Protecting, Conserving, and Restoring Marine and Coastal Ecosystems.”

On 6 June, PEMSEA hosted a side event on “Catalyzing Investments in SDG 14: Establishment of a Strategic Ocean Investment Ecosystem,” in partnership with UNDP, UN Environment, GEF, Blue finance, ARCOWA, and R20 Regions of Climate Action. Opening remarks were delivered by the President of the General Assembly of the United Nations, Peter Thomson, who affirmed the value of regional programs such as PEMSEA and the scaling up of ICM work in East Asia. The importance of new financial mechanisms to fund blue economies in light of decreasing natural capital was highlighted by Elliott Harris, Director of the New York Office for UN Environment.

Other subjects discussed included development of a new regional Ocean Investment Facility, addressing

the need for expertise in assessing the risks of ocean investments, identifying bankable projects, and matching capital with sustainable investment opportunities. PEMSEA’s former Executive Director Stephen Adrian Ross concluded the session by reiterating the importance of investing at the local government level without losing sight of project viability, and how such progress would benefit most from working partnerships.

On 26 July 2017, PEMSEA convened experts for an Ocean Leadership Roundtable during the EAS Partnership Council Meeting in Manila, as part of the efforts of PEMSEA country partners to tap international expertise in establishing public-private partnerships for investments. Along with the new Ocean Investment Facility, participants from different sectors discussed financing and investment approaches to green bonds, blue carbon, and waste water as a resource.

Green bonds, as discussed by Justine Leigh-Bell of the Climate Bonds Initiative (CBI), are debt instruments for financing green projects or environmentally responsible investments, such as renewable energy, low carbon buildings, and waste management endeavors. With the huge demand for green bonds at the moment, it is a market potentially worth trillions of dollars, as companies seek financial instruments with environmental benefits.

CBI and PEMSEA explored the possibility of using green bonds for sustainable coastal development, and identified Indonesia, the Philippines, Vietnam, and China as potential markets because of widespread ICM implementation, generally stable economies, and interest in green finance. PEMSEA has been a member of the CBI Technical Working Group on Marine Bond Standards, which is developing standards for green bonds to finance renewable marine energy and sustainable fisheries.

Dr. Veerle Vandeweerd, former Director at UNEP and UNDP, focused on GEF-established frameworks as foundations for sustainable investments. East Asia



Dr. Veele Vanderweerd and other panelists answered questions from participants in the panel discussion during the Ocean Leadership Roundtable.

is ripe for investment in coasts and oceans, she noted, so there is an urgent need for pipelines and pathways for the right projects, as well as policies that support such streamlining. Dr. Vandeweerd has been collaborating with PEMSEA in the development of an Ocean Investment Facility with regional and international partners.

Potentially investible projects that are aligned with relevant SDGs may be possible in a number of sectors, including water supply, pollution reduction and waste management, fisheries and aquaculture, ecotourism, ports, and climate-resilient infrastructure.

Going local

The number of local governments in the EAS region applying the principles of ICM has increased consistently since PEMSEA introduced the approach in 1994. Many of them now comprise the PEMSEA Network of Local Governments (PNLG), which counts 48 local government members committed to developing ICM programs and

environment-related initiatives according to the policies of their respective countries, as well as the model of the SDGs. This broad approach covers conservation, biodiversity protection, climate change adaptation, pollution reduction, and sustainable community-building. The network also allows local progress to be recognized and recorded.

The PNLG Strategic Action Plan (SAP) 2016-2021 was drafted by the network with the signing of the Ansan City Declaration in 2016, in direct support of five SDGs: SDG 6 (water and sanitation), 11 (sustainable cities), 13 (climate action), 14 (life below water), and 17 (partnership development).

The PNLG turned to technology to measure member progress in the implementation of the SAP. An online PNLG SAP Tracking System provides a step-by-step, systematic process for documentation, measurement, and progress reporting using agreed-upon indicators.

Information was gathered from members during the PNLG Forum held in Sanya, China in 2017,

including basic information, plans, and obstacles to achieving targets. It was revealed that more than 80 percent of members from 10 countries prioritized better access to solid waste management systems (SDG 11). Almost 70 percent of members from 10 countries committed to improving awareness, education, and institutional capacity for climate change adaptation and disaster risk reduction (SDG 13); 85 percent of members from 10 countries committed to scaling up protection and conservation of marine and coastal ecosystems (SDG 14); and most of the members pledged to reduce untreated wastewater, increase access to secure and safe potable water, and increase coverage of watershed areas with integrated management (SDG 6).

PNLG members thus have an enormous opportunity to positively impact their environment through well-thought-out local government initiatives. Greater investment and capital flow into local projects is just one potential positive outcome. PEMSEA and the PNLG Secretariat will conduct specialized skills training and study tours, carry out regular knowledge sharing and networking, promote private sector involvement, facilitate targeted research, and provide technical assistance in developing project proposals for access to funding. The online reporting process was targeted for full adoption in 2018.

Tracking progress, the high-tech way

The PNLG Tracking System is an online tool that monitors and reports if PNLG members are aligned with their Strategic Action Plan. It offers a way to make members' operations transparent, and to subject a member local government unit (LGU) to scrutiny and evaluation by fellow members. It begins when a member LGU registers the specific SDGs that guide its ICM program, using an online reporting platform. The LGU completes a baseline assessment using PEMSEA's SOC reporting system. The LGU registers targets under each SDG, including measurable parameters for tracking performance—for example, counting replanted mangrove seedlings to help achieve SDG 14—before coming up with a management plan, and committing to reporting annually to the PNLG Forum, in order to track progress and share ICM solutions. At every step, the information is uploaded for online national and regional knowledge sharing. These updates provide information on PNLG members' targets under the SDGs, priority concerns, current management programs and available resources for implementation, while also offering guidance to members for their respective ICM implementation.



A sustainability report card



Mr. Stephen Adrian Ross, former Executive Director of PEMSEA, and participants in the Blue Economy Forum in Bangkok, Thailand

Target 2 of the four strategic time-bound targets of the SDS-SEA 2015, agreed upon in the Da Nang Compact, is a regional State of Oceans and Coasts (SOC) reporting system by 2018, for monitoring and recording progress in SDS-SEA implementation.

During the 2017 Blue Economy Forum, PEMSEA's former Executive Director, Stephen Adrian Ross, pointed out that unlike traditional state of environment reports, the SOC looks at the contributions of oceans to regional and national economies, impacts of human activities on the ocean, potential areas for investments, and initiatives, innovations and policies being implemented in response to climate change and an environment under stress. The SOC is thus an effective instrument for good governance, working towards a blue economy, strengthening synergies among partners, and supporting sound, scientific decision-making. The national and regional SOC reports are to be presented at the EAS Congress in 2018.

PEMSEA country partners prepared SOC reports for the Blue Economy Forum, covering the state of the ocean economy and ocean health, blue economy

initiatives, and governance mechanisms. Some highlights:

Cambodia has a 440-km coastline, with mangroves, coral reefs, seagrass beds, estuaries, and mudflats as key habitats. In 2015, some 7.1 percent of the population—about 1.094 million people—lived on the coasts. ICM has been adopted in all Cambodia's coastal provinces, starting with Preah Sihanouk province in 1999, with support from PEMSEA.

In 2013, fisheries and aquaculture contributed an estimated US\$ 1 billion to Cambodia's GDP. Blue economy investment opportunities along Cambodia's coastline include wastewater treatment facilities, solid waste management facilities, sustainable tourism and beach management, habitat conservation, and green port development.

China, with its massive area, counts 18,000 km of coastline and 11 coastal provinces, where 52.6 percent of the population lives. Ecosystems in coastal areas range from estuaries, bays, and wetlands, to mangroves, coral reefs, seagrasses, salt marshes, and islands. With the huge fishing industry, marine catch reached 17.62 tons in 2015, with gross fishery



Photo by PEMSEA/L. Cabatay

value estimated at US\$2.2 trillion. Tourism and ecotourism are also huge industries, as well as shipping, China having important navigational lanes and ports. Naturally, this much human activity has led to environmental damage: marine reclamation land in 2015 reached 11,055.29 hectares. While allowable catch is only about eight to nine million tons, actual catch is approximately 13 million tons.

China has been taking action on sustainable development in the form of adaptations in fishing, aquaculture, ecotourism, eco-ships, eco-ports, and investment in the construction of climate-change resilient infrastructure.

Indonesia is the world's biggest archipelagic state, with 75,205 km of coastline and over 17,500 islands, with about 60 percent of the population of 255.71 million people living along these coasts. Main marine habitats are mangroves, seagrass, and coral reefs, with an estimated total economic value of almost US\$412 billion. Marine protected areas have increased by 12.56 million hectares between 2003

and 2016; in 2016, such areas covered 17.98 million hectares in 165 locations, with human pressure and climate change as the biggest threats. ICM has been implemented in about 48.54 percent of the coastline.

The ocean economy in Indonesia constitutes about 28 percent of the national economy, thanks to fisheries and aquaculture, coastal and marine tourism, ports and shipping, and offshore oil and gas. Blue economy initiatives cover pollution reduction, clean energy, and innovation in areas such as appropriate fishing technology, eco-fishing ports, fishery waste utilization, and marine transportation and energy.

Malaysia is composed of Peninsular Malaysia on the Asian mainland and East Malaysia on the island of Borneo, and is bordered by five major seas. It has a coastline of 4,675 km, with mangroves, coral reefs, and seagrass as major marine habitats, worth some US\$17.7 billion in economic value. Mangroves constitute the dominant ecosystem, covering some 500,000 hectares, although they are under constant pressure from cutting and conversion.

Peninsular Malaysia has recorded some 248,613 hectares of marine protected areas (MPAs); based on the Aichi Biodiversity Targets, the nation is committed to turn 10 percent of its marine areas into marine parks by 2020. Malaysia's biggest MPA, the million-hectare Tun Mustapha Park, was recently established. Aquaculture is a major source of fish production, accounting for about 520,514 tons of fish, worth approximately RM3.47 billion (about US\$ 896 million) in 2014. Ports and shipping represent a major ocean economic activity. Three of Malaysia's big ports are implementing a green ports program. With its many beautiful beaches and scuba-diving sites, sustainable tourism development and marine ecotourism practices are among its blue economy initiatives.

The **Philippines** is also an archipelago, with 36,289 km of coastline, some 7,500 islands, and a variety of marine ecosystems such as mangroves, coral reefs, seagrass, mudflats, and tidal swamps. Only 4 percent of hard corals were in excellent condition as of 2014. A mangrove rehabilitation program has planted over 76,000 hectares from 2011 to 2016. There are 1.38 million hectares of national MPAs, aside from over 1,000 MPAs managed by local governments. All of these, however, are under threat

from overfishing, sedimentation, destructive fishing, coastal development, pollution, and the effects of climate change, including extreme typhoons.

The ocean economy in the Philippines was worth US\$11.9 billion in 2016, with 25 percent of that value contributed by coastal and marine tourism, followed by fisheries, aquaculture, and manufacturing. Constant population pressure has made pollution reduction and wastewater management the priorities for blue economy investments. Ecotourism, sustainable fisheries, sustainable ports, coastal renewable energy, and marine biotechnology are among the blue economy initiatives.

The **Republic of Korea** has a coastline 13,509 km, and its waters boast a combination of warm and cold species, due to a mix of northern and southern currents. Several types of key habitats are identified, including rocky intertidal zones, soft bottom intertidal zones, subtidal zones, deep seabeds, pelagic zones, and underwater rocky zones. In 2012, the economic value of the marine ecosystem in Korea was estimated at around US\$42.5 billion, and the coastal waters at US\$6.2 billion. MPAs are classified into sub-areas: 25,432 hectares have been designated for marine ecosystems, and one area



Photo by PEMSEA/J. Rilles



of 9,124 hectares as marine landscape. In 2007, total marine industries contributed 3.3 percent of GDP.

Various management plans for fisheries and marine protection have been enacted, and a blue economy initiative is focused on the establishment of a green port in the large port city of Busan.

Singapore is a coastal city state measuring some 71,920 hectares in area. Common marine habitats include mangroves, seagrass, coral reefs, mudflats, rocky shores, and sandflats and beaches. Despite its small size, Singapore has four legally gazetted nature reserves and 20 administratively protected nature areas covering most natural habitats, as the small size of the country puts such assets in danger from further coastal modification, land reclamation, and the growth of invasive alien species. The city-state's entire coastline is covered by an ICM framework, which has been further customized into an integrated urban coastal management (IUCM) approach because of the highly urbanized coastal environment.

Singapore has in place several initiatives to mitigate the impact of its anthropogenic activities on the environment. An Environmental Protection and Management Act (EPMA) and a Sewerage and Drainage Act (SDA) regulate the discharge of wastewater from domestic, industrial, agricultural

and other sources, and water is checked monthly to ensure quality. These discharges collected by the public sewers are treated by water reclamation plants to the required effluent discharge standards, before discharging to the sea. Singapore also has anti-littering and waterways clean-up measures, and an integrated solid waste management and collection system, to ensure that waste is not washed into the ocean. To reduce the environmental impact of the maritime transport sector, Singapore has in place several initiatives including the Maritime Singapore Green Initiative (MSGI). The voluntary programs under the MSGI recognize and incentivize maritime companies to adopt clean and green shipping practices and go beyond the minimum International Maritime Organization (IMO) mandated requirements when it comes to environmental sustainability.

Timor-Leste is located between Australia and Indonesia, with almost 72 percent of its total population living along the coasts. Mangroves, seagrass, hard and soft coral reefs, and tidal swamps make up the main marine habitats. Estimated total value of the ocean economy is US\$ 1.97 billion. The key ocean economic activity in Timor-Leste is the offshore gas and oil industry, but investment opportunities are being promoted in the shipping and ports, tourism, and fisheries sectors. Mangroves have been seriously diminished due to the harvesting of



Photo by PEMSEA/F. Robas

trees, while fish stocks remain relatively abundant, since most fishing is for subsistence. The small country also counts seven MPAs, with a total area of 2,809 hectares; ICM has been implemented in three municipalities with 250.32 km of coastline. Environmental threats range from sea level rise, fires, and landslides, to floods and erosion, the latter mainly due to human settlements and resource extraction.

Thailand has a 3,148 km-long coastline, divided into two parts: the Gulf of Thailand on the east (2,055 km), and the Andaman Sea on the west (1,093 km). The coastal population in 2015 was 15,410,429 people or 23.44 percent of the total population. The key habitats are mangroves, seagrass beds, and coral reefs, with an estimated economic value of US\$ 36 billion. The area of mangroves has increased in the past few years due to reforestation, protection, and co-management with local communities. Around 34 percent (1.8 million hectares) of total territorial waters (5.3 million hectares) have been designated as marine protected areas, which include marine national parks, biosphere reserve, and environmental protected area. Currently, 5.46 percent of total coastline is implementing the ICM program, but this will be increased to 11.3 percent with planned additional ICM sites. Domestic and agricultural waste are the major sources of pressure on the marine environment. Ecotourism, sustainable aquaculture, green ports, and

wastewater treatment are among the country's key blue economy initiatives.

Local SOC reports in the Philippines have also been developed at the provincial level. Bataan, which has a coastline of 188.66 km, covers 11 municipalities and one city, almost all of them coastal. Along the coast, muddy tidal flats support the production of seafood like mussels, mudcrabs, and prawns, while mangrove forests and seaweed and seagrass ecosystems offer tourism and other socioeconomic benefits. The Bataan Coastal Strategy was established in 2002 to address the coastal environment and was later updated into the Bataan Sustainable Development Strategy (BSDS), with an implementation plan running until 2020.

The highly urbanized and populated province of Cavite, which also developed an SOC, has a coastline measuring 122.57 km, with seven cities and 16 municipalities. Its Cavite Integrated Coastal Management Program (CICMP), established in 2004, produced a profile of the province's coastal environment and outlined coastal resource management plans, leading to the development of the Cavite Sustainable Development Strategy (CSDS) in 2015, a long-term strategy for coastal and marine management.



Photo by PEMSEA/L. Cabatay



EMPOWERMENT

PEMSEA is sharing knowledge through a network of learning centers and hands-on traineeship programs, as well as via specific coastal management workshops with non-country partners

Centers of learning

In line with the SDS-SEA and the promotion of the ICM approach in the region, PEMSEA has invested in capacity building for people—professionals, academics, ICM practitioners, project managers—as well as groups, from entire coastal communities to organized networks. In 2017, PEMSEA, working with various partners, trained a total of 326 individuals. Opportunities ranged from national efforts like an ICM study tour in Sukabumi, Indonesia for delegates from Timor-Leste, to a study tour of waste and wastewater facilities in the Philippines for delegates from Lao PDR. Regional events covered training in the Marxan with Zones tool in Chonburi, Thailand, a training-of-trainers workshop in the Philippines, and several others. Another 269 participants also joined various consultative and collaborative workshops related to specific project outputs and development, emphasizing a learning-by-doing approach to capacity development.

The PEMSEA Network of Learning Centers (PNLC) is an arena for such hands-on learning at ICM learning centers and sites across the region. PEMSEA prepares participants to provide technical assistance to national and local governments, ICM project sites, NGOs, local communities, and the private sector. Members learn to run and monitor

coastal management projects, and to mentor local leaders on site.

Seventeen PNLC members across the region carried out the important task of sharing knowledge and skills in ICM. In Timor-Leste, for example, the National University of Timor Leste (UNTL) and Oriental University of Timor Leste (UNITAL) helped three ICM sites conduct baseline and vulnerability assessments and prepare SOC reports. In Indonesia, the Center for Sustainable Development at Udayana University (CSFD-UNUD) did similar work in Bali, while the Center for Coastal and Marine Resources Studies (CCMRS) of Bogor Agricultural University (BAU) supported four ICM sites for specific ICM, SOC, MPA, EAFM and risk and vulnerability assessment training. Network members includes two Regional Center of Excellence (RCoEs) and two new ICM Learning Centers in Indonesia, the CSFD-UNUD, and the Faculty of Fisheries and Marine Sciences of Diponegoro University (UNDIP). Experts from RCoEs are accessible to PNLC members for consultation on various subjects.

Five PEMSEA fellows were chosen in 2017, two for leadership training in the Inter-University Programme for Global Environmental Leaders in Hong Kong, and three for participation in the University Network for



Representatives from the municipalities of Dili, Liquica, and Manatuto in Timor-Leste visit an aquaculture facility in Sukabumi Regency, Indonesia in January 2017, to observe good practices in private sector and community collaboration for the economic empowerment of local people.

Climate and Ecosystems Change and Adaptation Research (UNCECAR) 2017 Leadership for Sustainability Programme at the United Nations University in Tokyo, Japan.

Recognizing the importance of a gender-sensitive and truly representational approach to ocean and coastal management, PEMSEA has integrated gender mainstreaming and women empowerment into its training and capacity building activities. Although women accounted for only about 40 percent of total training program participants in the past year, it is an important path that PEMSEA will continue to take.



Participants of PNLC Planning Meeting 2017

A mentor's perspective

By **Dr. Ario Damar**

Director, Center for Coastal and Marine Resources Studies (CCMRS) of Bogor Agricultural University (BAU)

Our vision for CCMRS is to become a reputable research institution, able to develop and implement approaches to sustainable utilization of coastal and marine resources aimed at improving coastal community livelihood. Our institution exists because it is needed not only from the perspective of scientific development, but also in the real world, where the imbalance of economic pressure on the ecosystem results in rapid degradation of habitats and resources.

The two pillars of our institution represent our two main tasks: research and capacity building. Research is basic, frontier, and applied research, to seek and explore various approaches. Capacity building consists of various activities to improve human resources through transfer of knowledge. Both pillars are applied in ICM.

ICM is seen as a more comprehensive, integrated, and holistic approach in managing coastal and adjacent marine areas. It covers ecological, socio-economic, and institutional aspects. Thus, ICM can be seen as an approach to achieve sustainable development of a coastal area—to improve the quality of ecosystems in providing goods and services to human systems, thus improving the local people's livelihood.

Teaching the ropes

Capacity development remains one of the cornerstones of PEMSEA's work, most immediately through in-house projects undertaken through the PEMSEA Resource Facility (PRF). Among these is the PEMSEA Traineeship program (formerly PEMSEA internship program), which prepares ICM practitioners from specific sites to implement and disseminate their learnings at the grassroots level.

In 2017, seven ICM practitioners from ICM sites in three countries—Cambodia (Kampot, Kep, Koh Kong), Indonesia (Bontang and Tangerang), and Lao PDR (Champasak and Saravan) immersed themselves for two months in the Philippines for the 2017 traineeship program. They visited ICM sites around the country for some hands-on training and practical exposure to systems that could be replicated back home. In Bataan, Batangas, and Cavite provinces, they joined technical discussions on good practices in coastal and river basin management. In Mabini and Calatagan, coastal municipalities in Batangas, they studied the user fees charged for entry into popular scuba-diving sites, as well as efforts in coral reef restoration and rehabilitation, marine protected area management,

and solid waste management. In Morong and Balanga, Bataan, they witnessed how integrated land- and sea-use zoning plans at the provincial and municipal levels were applied, along with local efforts in turtle conservation, mangrove restoration, and ecotourism. In Cavite, the focus was climate change adaptation and disaster risk reduction and management (CCA/DRRM), and river basin management and waste management. The trainees visited the Ecology Center and Materials Recovery Facility in Imus City, a mangrove restoration area in Noveleta, and the Pawikan Conservation Project in Naic.

At the conclusion of training, participants listed potential applications in their home countries for what they learned; they have since reported on such applications and the positive results.

In Tangerang, Indonesia, Hari Mahardika, a trainee from the first batch of 2017, continued implementing the Gerbang Mapan Program, a local ICM initiative. Mahardika led training on coastal community mangrove nursery establishment and planting, and mangrove reforestation as part of corporate CSR programs. The results: four hectares in Pulau Cangkir Island, 20 in Patramanggala Village, 15 in Ketapang, and five in Tanjung Pasir.

Tangerang's Pesisir Mengajar (Coastal Teaching) Program trained and mobilized 60 volunteers to promote environmental awareness in 32 schools in 25 coastal villages, reaching some 6,000 students. Mahardika also facilitated the signing of an MOU with PLTU, a state-owned electricity company, for collaborative coastal management, covering mangrove protection and rehabilitation, biodiversity conservation, environmental education, scientific research, community development and management of green open spaces.

The second batch of trainees from Cambodia, Lao PDR, and Indonesia are currently working on waste management, MPA management, and river basin management.



PEMSEA trainee Hari Mahardika (center, top photo) visited the Calatagan, Batangas EcoBank Project (top) and a mangrove sanctuary in Bataan (above).



PEMSEA trainees visited the Estero de San Miguel in Manila to observe good practices in river rehabilitation, including building linear parks and using bioremediation methods to improve water quality (left), and Kawit, Cavite, to learn about the city's solid waste management system (right).

'We are only borrowing resources'

By **Hari Mahardika**

Coordinator, ICM Program for Mangrove Restoration, Tangerang, Indonesia, and former PEMSEA trainee

I first realized that mangroves are very valuable when the tsunami hit Aceh in 2004. We were all in shock, but we moved to protect the critical land beside the mangroves. I learned that each species is unique, but is also difficult to seed and plant; some species are already on the IUCN Red List.

We have trained over 200 people since 2015, and although they generally realize the benefits of mangroves, only about 20 people are on the conservation frontline. Yet, the groups have already felt the direct benefits because we integrated the caring of the coastal environment with economic activities. I feel great satisfaction when the mangroves grow well and I see the sincere smiles of the people when they receive economic benefits from mangrove plants.

We started the Pesisir Mengajar in 2016 with only 20 volunteer trainers, and today we have 60 volunteers going to 32 schools. Volunteers are effective if they can earn trust, are responsible, and can use education to solve the problems in the coastal community. The young volunteers have a lot of passion for running the program, and work hard to educate the younger generation to care for their coastal environment. The students learn about the nutritional value of fish, how to properly dispose of garbage, even about personal healthcare.

I believe the quote that says, "We are only borrowing resources from future generations." Preparing them to be responsible managers is important for a sustainable coastal environment, and a sustainable earth.

Training the trainers

An ICM Regional Training of Trainers (RToT) workshop was held in the Philippines over 20-24 November 2017, attended by 16 participants from the PRF, PNLC, NOWPAP, universities and research institutions, and representatives of PEMSEA country and non-country partners. As part of its medium-term strategy, NOWPAP, a non-country partner of PESMEA, participated in the training to benefit its member countries' work in marine biodiversity conservation and management, and in pollution reduction and waste management.

The RToT is meant to prepare participants to share knowledge and conduct their own ICM training for their respective agencies and groups. The goal is to use ICM as a tool for achieving the SDGs as well as meeting other national, regional, and international commitments. Case studies were used to illustrate real-life experiences on

ICM implementation. A visit to an ICM site in Calatagan, Batangas exposed the trainees to actual scenarios and challenges, bringing home the importance of a multi-disciplinary and multi-sectoral approach to ICM.

PEMSEA's latest group of ICM trainers will help in ICM implementation in China, Indonesia, Thailand, Timor-Leste, and the Philippines. The training course helped in capacity building on ICM principles and uses for one NOWPAP member country in particular, Russia. NOWPAP also held a meeting of member countries China, Korea, Japan, and Russia, where they noted gaps in the development and implementation of ICM in Russia, both at the federal and regional levels. NOWPAP noted the importance of working meetings to share ICM experience among member countries.



Representatives from PEMSEA and NOWPAP countries participated in the Regional Training of Trainers held 20-24 November 2017.

Coastal management on the ground



Participants from PEMSEA Network of Learning Centers with the trainers from Korea Maritime Institute and hosts from Burapha University in the Marxan Z Training Workshop held in Choburi, Thailand

PEMSEA worked with its non-country partners on training and workshops on coastal management, specifically marine spatial planning and marine pollution management.

The Korea Maritime Institute (KMI) and Seoul National University (SNU) helped train participants on Marxan with Zones (Marxan Z), an environmental software and planning tool applicable to areas of various protection levels with specific ecological, social, and economic objectives, at a minimum total cost. The workshop was held on 24-26 May 2017 in Batangas City and benefited five provincial governments around the Verde Island Passage: Batangas, Marinduque, Occidental Mindoro, Oriental Mindoro, and Romblon.

With more support from KMI and SNU, PEMSEA worked with PNLC-Burapha University (PNLC-BUU) on a two-day regional training workshop on 9-10 August in Chonburi, Thailand on Marxan Z and Marine Assessment & Planning System-Marine Suitability Assessment (MAPS-MSA). The

latter is a tool for coastal and marine spatial management that covers coastal seawater zoning, site designation, and screening for environmental impact assessment (EIA) and strategic environmental assessment (SEA). The 39 participants were representatives from the PNLC and ICM sites in Cambodia, China, Indonesia, Malaysia, the Philippines, South Korea, Thailand, Timor-Leste, and Vietnam.

Seawater Quality Monitoring and Analysis was the subject of another five-day workshop on 4-8 December, organized by PEMSEA and RO Korea's Ministry of Oceans and Fisheries in collaboration with the Korea Marine Environment Management Corporation (KOEM) and Korea Institute of Ocean Science & Technology (KIOST). An identified need for participants was increased capacity in monitoring and analysis of sea water, and 15 trainees from EAS countries learned such concepts as the Integrated Environmental Monitoring Program (IEMP) to address coastal pollution.



Photo by PEMSEA/R. Wong



MAKING CONNECTIONS

PEMSEA is extending its reach beyond direct coastal management, bringing attention to the region's critical carbon sinks, supporting river rehabilitation, and helping transform busy ports into pockets of greenery

Blue carbon

Imagine the effect on the atmosphere of removing 4.5 million cars from the road. This is the equivalent of the sequestration of 22.4 million tons of carbon dioxide every year by blue carbon ecosystems, including four million hectares of mangroves in East Asian tropical countries, which account for 30 percent of the world's mangroves. Add to these the tidal marshes and seagrasses, and you have the critical blue carbon ecosystems, carbon sinks that snatch carbon from the atmosphere to regulate temperatures, protect shorelines and fish nurseries, preserve water quality, and defend coral reefs from sedimentation. Yet, in East Asia, a global hotspot for remaining blue carbon ecosystems, these areas are disappearing at an alarming rate of around 800,000 hectares each year, transforming them into sources of planet-warming greenhouse gas (GHG) emissions. About 3.4 million hectares of mangroves and tidal marshes have been converted or lost over the last century, releasing an estimated 3.5 billion tons of carbon dioxide.

In June 2017, *Understanding Strategic Coastal Blue Carbon Opportunities in the Seas of East Asia*, a study released by PEMSEA, Conservation International, The Nature Conservancy, and Silvestrum Climate Associates, discussed the science and policy of blue carbon in East Asia.

The goal of the study is to accurately present the status of coastal blue carbon ecosystems across East Asia and provide guidelines for countries seeking to strengthen policy and management for blue carbon ecosystems. "There are actions that countries, individually or collectively, can take to improve management and reduce GHG emissions, potentially supported by international finance," noted lead author Dr. Stephen Crooks of Silvestrum Climate Associates.

The report has brought PEMSEA to the forefront of regional blue carbon discussion; the organization gave a keynote talk on the issue at the Coral Triangle Initiative Regional Workshop on Blue Carbon in August 2017.



Understanding Strategic Coastal Blue Carbon Opportunities in the Seas of East Asia, a study published by PEMSEA in 2017

Better management towards SDGs

We know that healthy coastal ecosystems sustain local economies across the region. We are also learning that by improving their management, countries can take steps to address climate change, advancing their commitments to both the Paris Climate Agreement and the Sustainable Development Goals.

Stephen Adrian Ross
PEMSEA Executive Director (2013–2017)

Living rivers

With growing populations in East and Southeast Asia comes a greater demand on water sources, even as factors like industrialization, agriculture, and urban development are detrimentally affecting the quality and quantity of this resource. Economic activities progress haphazardly, and with little foresight, primarily because of a lack of understanding of the connection between land and sea ecosystems, and improper management to address the negative effects of development—pollution and sedimentation—and the sectors that cause them. With the added effect of climate change, coastal areas and rivers are coming under tremendous pressure.

Continental East and Southeast Asia (Myanmar, Thailand, Lao PDR, Cambodia, Vietnam, and China) is drained by six major river systems: the Irrawaddy, Salween, Chao Phraya, Mekong, Red, and Yellow rivers. Archipelagic Southeast Asia countries (such as Malaysia, Indonesia, the Philippines, and Brunei Darussalam) have major rivers that drain into the seas, bringing everything—from life-giving nutrients to deadly toxins—with them. Some of these countries have also been identified as major sources of global plastic ocean pollution. Land runoff from fertilizers, livestock, and sewage dump excess nutrients into water bodies, reducing oxygen, killing life, and jeopardizing human health. Deforestation, resulting in erosion, sedimentation, and flooding, further complicate the issue.

The Third Asia-Pacific Water Summit, convened in Yangon, Myanmar in December 2017, revealed that some 1.1 billion people in Asia live in areas with threatened water sources. “The Yangon Declaration: The Pathway Forward,” the resulting report from the summit, underscored the urgent role of sustainable water resource use and management in achieving the SDGs.

PEMSEA’s SDS-SEA recognizes the impact of major rivers and river basins on coastal and marine ecosystems, and consequently, on human economies and livelihoods. The SDS-SEA strategy on the maintenance and enhancement of coastal waters works towards “extending the implementation of integrated watershed development and management programs to all major river basins, lakes and international water systems in the region.”

A natural offshoot of PEMSEA’s vision of ICM is the integrated river basin management (IRBM) approach, which connects social, economic, and environmental concerns of river basins to coastal and marine ecosystem impacts. Experiences on river management in Juliong River and Xiamen Bay (Xiamen, China); Laguna Lake, Pasig River, and Manila Bay (Manila, Philippines); and the Sedone River (Lao PDR) emphasize how source-to-sea governance and management are as much about people, economics, and politics as they are about science.

These lessons informed the development of a GEF project proposal on “Reducing Pollution and Preserving Environmental Flows in the East Asian Seas through the Implementation of Integrated River Basin Management in ASEAN Countries,” a collaboration of the United Nations Development Programme (UNDP), the ASEAN Secretariat, the ASEAN Working Group on Water Resources Management, and PEMSEA.

Seven ASEAN Member States (AMS) identified priority river basins and coastal or marine areas as national IRBM pilot sites, with pilot project proposals for completion in June 2018. These are the Kampong River (Kampong Bay), Cambodia; the Ciliwung River (Jakarta Bay), Indonesia; the



Da Nang Bay (Photo by Da Nang PMO)

Louangnamtha River (Mekong River), Lao PDR; the Keda-Muda River Basin (Kota Setar-Kuala Muda), Malaysia; the Bago and Myit Ma Hka River Basin (Gulf of Martaban, Andaman Sea), Myanmar; the Imus-Ylang Ylang Rivers (Manila Bay), the Philippines; and the Vu Gia-Thu Bon Rivers (Danang Bay), Vietnam.

Through these IRBM project, countries are learning by doing as they work on how to properly plan, finance, and operate such management systems, while building local capacity in addressing problems like plastic pollution and solid waste. The goal: to turn each IRBM pilot site into a model site for learning lessons that can be applied to other important water sources and sites around the respective countries.

Cleaning up Manila Bay

A Supreme Court decision in December 2018 ordered 13 national agencies to rehabilitate and preserve Manila Bay and make the water fit for swimming, skin diving, and other recreational activities, through the implementation of the Operational Plan for the Manila Bay Coastal Strategy (OPMBCS), led by the Department of Environment and Natural Resources (DENR)-Manila Bay Coordinating Office. The updated OPMBCS 2017-2022 was approved by the Supreme Court on 5 May 2017. Meetings of the inter-agency Manila Bay Coordinating Committee, organized and chaired by the DENR Secretary and held on 12 August and 18 December 2017, reaffirmed the commitments of various agencies to implement the OPMBCS 2017-2022.

Manila Bay Day, organized every December 18, serves as a platform to recognize the efforts of local government units (LGUs) contributing to the attainment of OPMBCS targets. For liquid waste management, while water quality in the bay remains below SB levels (i.e., not fit for swimming, skin-diving, and other forms of contact recreation) based on monitoring results, compliance monitoring continues for establishments with discharge permits. Notices of violation were issued for non-compliant establishments, and sanitation services and sewerage connection provided by the two water concessionaries. Four river systems are in the process of being designated as Water Quality Management Areas, as required by the Clean Water Act.

A total of 108 of the 178 LGUs (61 percent) has approved 10-Year Solid Waste Management Plans; 110 LGUs (62 percent) have functional materials recovery facilities. The LGUs have failed to contain the growth of informal settler families along the waterways, however. From 2011 baseline data, the rate of increase is much faster than the relocation rate, with a huge increase of about 342 percent for 2011-2016.

The greening and vegetation of a total of 150,662 hectares was targeted under the National Greening Program, to reduce soil erosion and agricultural run-off until 2022. Mangrove rehabilitation covered 1,003 hectares, which surpassed the 1994 mangrove cover of 794 hectares. Six mangrove areas have been identified as ecotourism sites in three regions encompassing the Manila Bay watershed.

Real time water quality monitoring equipment has been installed at four locations in the National Capital Region; four more will be installed at identified sites in Region 3 (Pampanga, Bulacan, Bataan) and Region 4A (Cavite). A bathymetric survey of over 50 percent of the Manila Bay Area was conducted in collaboration with the National Mapping and Resource Information Authority (NAMRIA), and is expected to cover 100 percent of the bay by December 2018.

Water resources development in Myanmar

The large Myit Ma Hka-Bago basin encompasses agricultural land, industrial areas, a variety of ecoregions such as tropical forests and coastal wetlands, as well as Myanmar's largest city, Yangon. As Myanmar only uses an estimated 5 percent of its water resources, there is huge potential for the further utilization of water resources.

Limiting such potential development, however, is the water's decreasing quality. Direct sources of pollution, such as sewage, urban wastewater, and industrial waste, are combined with non-point sources such as agricultural runoff. A sometimes opaque licensing system is magnifying the impacts of growing industrialization, and a lack of wastewater treatment and solid waste collection means huge amounts of domestic waste entering the water system. In spite of the low level of water resource exploitation, the poor management of existing usage means limited access to clean water for drinking and sanitation for many people.

With the current legal framework's inability to address such challenges, an integrated river basin management (IRBM) approach aims to implement a number of changes in this crucial part of Myanmar. Priorities for the development of a more sustainable system include improved water management, improved water treatment, developing waste collection, strengthening governance, increasing public awareness, and establishing a monitoring system.

Green ports

As an ocean-based industry, shipping covers much more than just maritime trade itself, and now includes shipping logistics, insurance, bunkering, crewing, ship building and repair, and information technology. The industry itself, and the ports that are essential to its survival, are now aiming for sustainability, as well. Busy ports in Singapore, China, Japan, and Malaysia are turning to green port practices, such as controlling air and water pollution levels, recycling waste and heat, using green infrastructure, and even rehabilitating and conserving habitats within their area of jurisdiction.

An integrated management system, the Port Safety, Health and Environmental Management System (PSHEMS), has been implemented in

ports such as Batangas, General Santos, and Cagayan de Oro in the Philippines and Bangkok and Laem Chabang in Thailand, and has had positive impacts on port employees' health and safety, business performance, and controlling environmental damage.

The PSHEMS allows port authorities and operators to voluntarily use prescribed tools to evaluate operational procedures based on international and national standards, and to facilitate compliance according to established guidelines. PSHEMS also leads to improved port operations and performance over time, a direction consistent with the implementation of the PSHEM component of the UNDP-GEF Scaling up Implementation of the Sustainable Development

Strategy for the Seas of East Asia (SDS-SEA), which targets a 25 percent increase in “green cover” in port areas.

The Port Management Office of Batangas maintains a Tree Park, a 3.51-hectare area planted with more than 450 trees of various indigenous species. The Tree Park is enclosed with a fence, maintained daily, and replanted when uprooted by typhoons. When the port was being developed, some 97 mature trees were relocated to the park, just as some 200 mangrove trees that obstructed the flow of storm water were relocated to a mangrove site in Barangay Sta. Clara, Batangas City.

The port of General Santos and Cagayan de Oro cover small areas, with little to convert into greenery. Port management solved the problem by planting mangroves and trees in areas agreed

upon with some local government units. The Port of General Santos joined the Adopt-a-River Program of the Municipality of Glan, Sarangani Province, planting mangroves and bamboo on the banks of the Glan River. The Port of Cagayan de Oro planted some 5,000 mangrove propagules in El Salvador city, Barangay Pangayawan in Gitagum, Misamis Oriental, and Barangay Bonbon, Cagayan de Oro.

The area around Laem Chabang Port is surrounded by a rich, 4.5-hectare natural mangrove forest. The port is working with the Laem Chabang Municipality, the Ban Laem Chabang District Learning Center, and Kasetsart University, Sriracha Campus on the preservation and rehabilitation of the mangroves through garbage collection, population surveys, and replanting of damaged areas. The next phase of the work will allocate another 4.8 hectares for further “greening.”



The Port Management Office of Batangas maintains a Tree Park, a 3.51-hectare area planted with more than 450 trees of various indigenous species. (Photo by Batangas Port)



Photo by PEMSEA/J. Castillo



BETTING ON TOMORROW

PEMSEA is setting its agenda for the future, investing in the youth, and taking stock of its relevance and directions for the upcoming EAS Congress 2018

Where are we now? Who will carry on?

A comprehensive, independent Third-Party Assessment was carried out for PEMSEA, its partners, and other stakeholders to confirm PEMSEA's relevance and effectiveness in promoting regional cooperation and instituting frameworks for ICM in the EAS region. Questions on the value of PEMSEA, its role, options, accomplishments, and future plans were addressed in over 30 interviews with partners, collaborating organizations, Executive Committee members, local governments, funders, and experts.

The assessment further affirmed PEMSEA's sustainability, good financial standing, and clear direction as an intergovernmental organization, thanks to a three-year financial map.

The results of the assessment were shared in July 2017 at the 9th EAS Partnership Council Meeting. Among the points raised were the accomplishments of PEMSEA, especially in the development and promotion of the SDS-SEA and the establishment and scaling up of ICM all over the region; the ongoing need for regional coordination by a qualified body to facilitate capacity building, technical knowledge sharing, and working towards sustainable development, especially for developing nations; the unique role PEMSEA plays as an intergovernmental organization representing many country partners, and allowing these partners to work together, access expertise, and implement projects for environmental protection, particularly in line with SDG 14; PEMSEA's financial stability, thanks to international donors like the GEF and its country partners and guidance from its implementing agency, UNDP, which assures its financial viability; and finally, the need for PEMSEA to explore new frontiers of sustainable development across countries and boundaries, innovating in both its approach and its access to investment.

The health of the world's coasts and oceans is in the hands of the youth, and PEMSEA is working to ensure that this future ends up in good hands through its Youth Program. The program aims to support the youth in developing skills and knowledge needed to become effective ICM practitioners in their respective communities, helping to spread the word on ICM and its importance, as guided by PEMSEA's SDS-SEA.

An important part of the EAS Congress, the EAS Youth Forum was launched in 2006 to help mold young people into environmental advocates and community leaders, and to invite and equip them to collaborate on ICM solutions. The forum provides valuable opportunities for young people to meet and interact with ICM experts and luminaries in the field of conservation.

In 2015, PEMSEA started an annual Small Grant Competition for youth projects. In 2017, the grant was given to Sip PH, a university-based enterprise started by student Pocholo Espina that aims to do away with plastic straws in the school's immediate neighborhood in Quezon City, Philippines.

Hands-on experience awaits young people at PEMSEA ICM sites around the region, with many of the students already participating in some form of ICM activity such as data collection; some have gone on to work full-time in the field as ICM project management officers. Other than this experience, online communities and webinars provide access to speakers and ICM experts who provide free guidance—and much inspiration.

The last straw

Pocholo Espina, a 22-year-old graduate of Health Sciences from the Ateneo de Manila University in Manila, started Sip PH, a small enterprise that sells reusable metal straws, to make extra vacation money. “It started out as something I just wanted to do for myself,” he says, “but it eventually became something I wanted to do for the environment.”

Espina started skin-diving while still in college, joining the local marine conservation advocacy group Save Philippine Seas, and what he saw over the years pushed him even more to get involved. “I experienced it first-hand. When I first started skin-diving, everything was so beautiful. Then you see the amount of trash and coral damage, you see there’s a stark difference, and you know you have to act.”

Like many entrepreneurs, Espina used social media to push his products, which were promptly sold out. Beyond profit, however, he was determined to make a social impact, and concentrated his efforts on the neighborhood of Katipunan Avenue and Loyola Heights in Quezon City, across from his alma mater, where dozens of restaurants cater to the university crowd—and where mountains of plastic straws are used and disposed of every day. The PEMSEA youth grant in 2017 enabled Sip PH to give away thousands of metal straws to restaurants, in a project aptly christened “The Last Straw Katipunan.”

Espina used a solid business model, however, wasting no resources and focusing on places with the highest viability. He employed digital marketing, as well as sustainable flyers and posters, to educate people, and to eventually move “beyond the straw.” For the long term, Espina has created an easily replicable set-up that would take three to six months to implement in other communities.

Now, Espina is hiring people and expanding into other sustainable product lines, such as bamboo utensils, to ensure that Sip PH stays workable and can combine its advocacy with enterprise (www.sip.ph). The important thing, Espina says, is to bridge the gap and “talk to everyone—businesses, schools, residences, local government. The product is minor, but the campaign is rooted in using collaborative efforts to benefit the environment and, we hope, enlighten individuals. It really shouldn’t just be about the money.”



Espina shows off some of Sip PH's products.



Where do we go from here?

The East Asian Seas (EAS) Congress 2018, set for 27-30 November in Iloilo, the Philippines, is the sixth installment of the triennial conference aimed at pursuing a truly global ocean agenda. This year's theme, "25 Years of Partnerships for Healthy Oceans, Peoples and Economies: Moving as One with the Global Ocean Agenda," highlights the role played by PEMSEA over a quarter of a century in fulfilling its vision of healthy ocean, people, and economies (HOPE), and of bringing together all sectors of society towards working for this vision in the EAS region. This trajectory is driven by the unprecedented economic, ecological, social, and political significance of oceans worldwide and in the region, as affirmed by UN SDG 14, Life Below Water, and reiterated at the UN Ocean Conference in 2017. Stakeholders expected at the event include representatives of national and local governments as well as the UN, NGOs, financial institutions, academics and scientists, project and program leaders, and global and regional business.

PEMSEA has outlined the aims of the Congress, which are to map out and align the implementation of the SDS-SEA with SDG 14; to share knowledge, experiences, opportunities, and issues on such implementation; to build on already working partnerships for sustainable coastal and ocean development; to track applications of blue economy principles across the region; and to initiate an ocean investment facility to move this blue economy forward.



Planned Partnership Hubs, to be organized as discussions among PEMSEA partners and collaborators, will cover a wide range of tracks: climate and blue carbon, marine pollution and clean water, blue economy, biodiversity and coastal management, governance and partnership, research, and tools, and ocean industry and finance. Also to be held concurrently within the Congress is the Sixth Ministerial Forum, convening ministers and senior government officials from EAS countries as well as non-country partners; the Fifth EAS Youth Forum, which will have as a main agenda the establishment of the EAS Youth Council, as well as other advocacy projects; and the PEMSEA Network of Local Governments (PNLG) Forum 2018, which will assess where PNLG members are with regard to achieving target SDGs, and meeting the objective of 25 percent ICM coverage for the region's coastlines.

Diversifying funding options

In line with PEMSEA's goal to "identify a number of steady financing streams that will generate funds to sustain its current level of operations, growing at a certain rate over time to realize the common SDS-SEA vision of its Partners," and as one of PEMSEA's strategies for funding diversification, the PRF searched for organizations and funds that can provide a new source of financing streams. One such potential source is the Green Climate Fund (GCF).

In 2017, PEMSEA initiated the process to become a GCF accredited entity. The GCF is a new global fund created to support the efforts of developing countries to respond to the challenge of climate change. GCF helps developing countries limit or reduce their GHG emissions and adapt to climate change. It seeks to promote a paradigm shift to low-emission and climate-resilient development, taking into account the needs of nations that are particularly vulnerable to climate change impacts, according to the GCF website (<https://www.greenclimate.fund/who-we-are/about-the-fund>). GCF-accredited entities carry out a range of activities for the fund, including the development of funding proposals and the management and monitoring of projects and programs.

The PRF assembled its documents, policies, procedures, and records to demonstrate the PRF's ability to manage GCF's resources in line with the fund's fiduciary standards, as well as the PRF's capability to manage environmental and social risks that may arise at the project level, and to comply with the Fund's gender policy. Such evidence included information on PEMSEA's background, how PEMSEA can contribute to the GCF, and the PRF's intended scope, administrative and financial capabilities, and environmental social management system. The PRF also formulated its own environmental and social safeguards, gender mainstreaming policies, and procedure for risk assessment, and aims to complete the requirements to become a regional accredited entity in 2018-2019.

Ensuring accountability

Environmental and social safeguards and gender mainstreaming have become standard practices in development cooperation, programs, and projects. In order to meet the goals of its mandate, the PRF came up with its environmental and social safeguards and gender mainstreaming policies. These policies strengthen the PRF's accountability to PEMSEA's country and non-country partners, as well as its other stakeholders in the development processes (e.g., donors and international organizations).

The PRF's environmental and social safeguards and gender mainstreaming policies define the safeguards requirements and policies that will apply and be implemented in PRF operations, programs, and projects. The objective of these safeguards and policies is to provide direction and process to ensure that adverse environmental and social impacts of the PRF's operations and projects are avoided, minimized, and appropriately mitigated.

Another aim of the implementation of this policy is to strengthen gender equality and empower women stakeholders and organization in all of PEMSEA's operations, and in all stages of the project cycle. This will enable women to play an active role in PEMSEA's operation, project implementation, and decisionmaking.

Our Organization

EXECUTIVE COMMITTEE

- Chair:** **Dr. Antonio La Viña**
Chair, East Asian Seas Partnership Council, PEMSEA
- Members:** **Dr. Zhang Haiwen**, Intergovernmental Session Chair, EAS Partnership Council, PEMSEA
Mr. Makoto Harunari, Technical Session Chair, EAS Partnership Council, PEMSEA
Mr. Arief Yuwono, Council Co-Chair, EAS Partnership Council, PEMSEA
Dr. Vu Thanh Ca, Intergovernmental Session Co-Chair, EAS Partnership Council, PEMSEA
Dr. Jae Ryoung Oh, Technical Session Co-Chair, EAS Partnership Council, PEMSEA

EAST ASIAN SEAS PARTNERSHIP COUNCIL

Country Partners

Cambodia

Mr. Long Rithirak, Deputy Director General, Ministry of Environment

China

Ms. Chen Yue, Director-General, International Cooperation Department, State Oceanic Administration

DPR Korea

Dr. Jong Sang Hun, Deputy Director General, General Bureau for Cooperation with International Organizations (GBCIO), Ministry of External Economic Relations

Indonesia

Mr. Karliansyah, Director General for Environmental Pollution and Degradation Control, Ministry of Environment and Forestry

Japan

Mr. Yasuhiro Shinohara, Vice Director-General, Policy Bureau, Ministry of Land, Infrastructure, Transport and Tourism

Lao PDR

Mr. Chanthanet Boulapha (2017); Dr. Inthavy Akkharath (2018) Director-General, Department of Water Resources, Water Resources and Environment Administration, Ministry of Natural Resources and Environment

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Singapore

Mr. Hazri Hassan, Director, International Policy Division, Ministry of the Environment and Water Resources

Timor-Leste

Mr. Acacio Guterres, Director General of Fisheries, Ministry of Agriculture and Fisheries

Viet Nam

Mr. Vu Si Tuan, Deputy Director General, Viet Nam Administration of Seas and Islands, Ministry of Natural Resources and Environment

Non-Country Partners

ASEAN Centre for Biodiversity (ACB)
 Coastal Management Center (CMC)
 Conservation International (CI) Philippines
 International Center for the Environmental Management of Enclosed Coastal Seas (EMECS)
 International Ocean Institute (IOI)
 International Petroleum Industry Environmental Conservation Association (IPIECA)
 The International Union for Conservation of Nature and Natural Resources (IUCN)-Asia Regional Office (ARO)
 Korea Environment Institute (KEI)
 Korea Institute of Ocean Science and Technology (KIOST)
 Korea Marine Environment Management Corporation (KOEM)
 Korea Maritime Institute (KMI)
 Marine Biodiversity Institute of Korea (MABIK)
 Northwest Pacific Action Plan (NOWPAP)
 Ocean Policy Research Institute - Sasakawa Peace Foundation (OPRI-SPF)
 Oil Spill Response (OSR)
 Plymouth Marine Laboratory (PML)
 PEMSEA Network of Local Governments for Sustainable Coastal Development (PNLG)
 UNDP/GEF Small Grants Programme (SGP)
 UNDP/GEF Yellow Sea Large Marine Ecosystem (YSLME) Project
 UNEP Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA)
 IOC Sub-Commission for the Western Pacific (IOC-WESTPAC)

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NARCISE, Cristine Ingrid S.	ICM Specialist/Country Manager (Indonesia, Thailand and Timor Leste)
NEPOMUCENO, Ma. Concepcion	Office Assistant
PADAYAO, Daisy	ICM Specialist/Country Manager (Cambodia and Lao PDR)
PAIGAO, Almary Joyce	Congress Sub-Coordinator
PANGAN, David King	Investment Specialist
PEÑA, Mary Ann dela	Finance Specialist
PURA, Ma. Concepcion	Congress Sub-Coordinator
REYES, Antonia	Manager of Strategic Initiatives
SISON, Regina	Finance Assistant
VASQUEZ, Vida Isabel	Assistant Secretariat Coordinator
VILLANUEVA, Michael	Librarian
WHISNANT, Ryan	Director of Strategic Initiatives
ZALDIVAR, Jhowilyn	Country Programme Assistant

Financial Summary

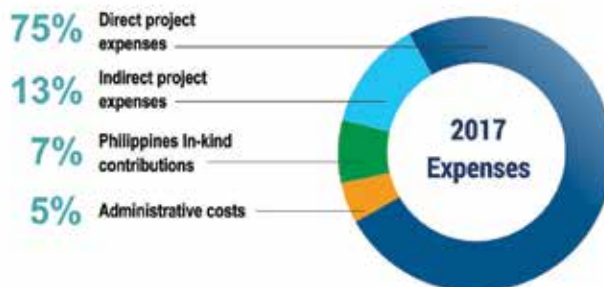
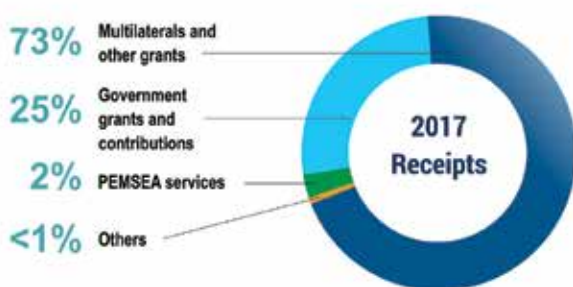
In 2017, total receipts for the year were US\$2.9 million, slightly lower than the \$3 million generated in 2016. This 3 percent decrease is from an expected decrease in grants received due to project terminations. At the same time, committed funding (i.e., deferred grants) increased by 22 percent to \$1,137,990.

Restricted multiyear grants represented 73 percent of total receipts in 2017, predominantly from GEF through UNDP. Grants and contributions from country partners PR China, Japan, RO Korea, Singapore, Timor-Leste and the Philippines accounted for 25 percent of total receipts.

Expenses in 2017 totaled \$2.9 million, a 15 percent increase from 2016, due in large part to an increase in consultancy expenses associated with acquiring additional services to assist countries on project implementation. Personnel and consultancy expenses accounted for 54 percent of the total expenses. 2017 project expenses (direct and indirect) of \$2.6 million accounted for 88 percent of the total expenses, of which \$2.2 million were direct project expenses. Administrative costs were 12 percent of the total, including 7 percent attributable to the value of in-kind contribution for office space and utilities provided by the Philippines.

PEMSEA's total assets increased by 6 percent, the majority of which is attributable to an increase in cash of 4.5 percent in 2017. We remain thankful for our partners' continuing support in working together towards the sustainable development of our shared Seas of East Asia.

* Philippine Financial Reporting Standards (PFRS) require us to record receipts in the year the funds are designated for use.



Statement of Financial Position (in US\$)

ASSETS	2017	2016
CURRENT ASSETS		
Cash	3,307,867	3,166,619
Receivable	169,978	110,843
Total current assets	3,477,845	3,277,462
NON CURRENT ASSETS		
Available for Sale Financial Asset	186,290	154,443
Property and Equipment - net	28,402	37,549
Other non-current asset	82,794	105,577
Total non-current assets	297,486	297,569
TOTAL ASSETS	3,775,330	3,575,031

LIABILITIES AND FUND BALANCE

CURRENT LIABILITIES		
Accounts Payable and Accrued Expenses	384,906	436,669
Deferred Grant	1,137,990	929,581
Total current liabilities	1,522,895	1,366,250
NON CURRENT LIABILITIES		
Defined contribution liability	82,049	37,630
Retirement benefit obligation	27,941	51,927
Total non-current liabilities	109,990	89,556
TOTAL LIABILITIES	1,632,885	1,455,806
EQUITY		
Fund Balance	2,118,011	2,141,677
Employee benefit reserve	(2,705)	(17,743)
Fair value reserve	27,138	(4,709)
Total equity	2,142,444	2,119,225
TOTAL LIABILITIES AND EQUITY	3,775,330	3,575,031

Statement of Receipts and Expenses (in US\$)

	Unrestricted	Restricted	2017	2016
RECEIPTS				
Government Contributions and grants	291,920	457,396	749,317	868,232
Multilaterals and other grants		2,140,149	2,140,149	2,109,077
PEMSEA services	59,199		59,199	53,518
Others	4,977		4,977	19,152
TOTAL RECEIPTS	356,097	2,597,546	2,953,642	3,049,979
EXPENSES				
Direct project expenses				
Personnel		774,725	774,725	667,709
Consultancy		400,178	400,178	192,510
Subcontract		619,080	619,080	474,917
Travel and meeting		151,383	151,383	196,284
Training		254,653	254,653	249,866
Other direct costs		22,608	22,608	10,349
Total direct project expenses		2,222,627	2,222,627	1,791,634
Indirect project expenses				
Personnel		253,976	253,976	154,382
Consultancy		61,546	61,546	12,673
Travel and meeting		29,966	29,966	25,339
Overhead		46,714	46,714	39,503
Total indirect project expenses		392,202	392,202	231,897
Administrative cost				
Personnel	101,564		101,564	278,436
Consultancy	18,507		18,507	18,866
Travel and meeting	17,236		17,236	33,749
Overhead	13,387	211,786	225,173	230,707
Total administrative cost	150,694	211,786	362,480	561,758
TOTAL EXPENSES	150,694	2,826,615	2,977,309	2,585,289
EXCESS (DEFICIENCY) OF RECEIPTS OVER EXPENSES	205,402	(229,069)	(23,666)	464,690
OTHER COMPREHENSIVE LOSS				
Items that will not be reclassified subsequently to receipts or expenses				
Remeasurements of post employment benefit obligations			15,038	6,789
Remeasurements of AFS			31,847	12,942
TOTAL COMPREHENSIVE INCOME			23,219	484,422



Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) is an intergovernmental organization operating in East Asia to foster and sustain healthy and resilient oceans, coasts, communities and economies across the region. Through integrated coastal management solutions and partnerships, PEMSEA works with local and national governments, international development organizations, companies, investors and research institutions towards sustainable development of coasts and oceans in East Asia.