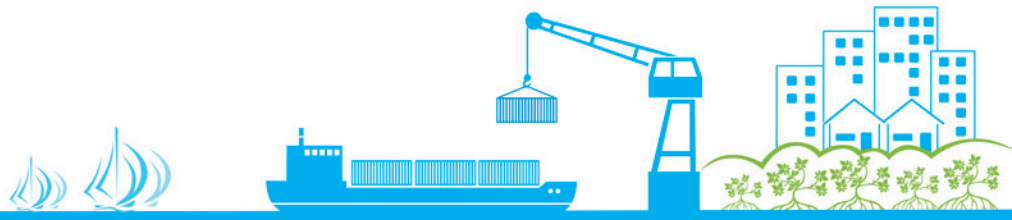
Blue Economy Forum 2017

PROCEEDINGS

14-15 November 2017
Miracle Grand Convention Hotel, Bangkok, Thailand



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Executive Summary

Decision-makers and leading experts from ministries, industry, academe and international organizations came together for the first regional Blue Economy Forum, which was held on 14-15 November 2017 in Bangkok, Thailand. The East Asian Seas (EAS) region is a center of marine biodiversity as well as a center of economic growth, but there are complex pressures and threats affecting the state of ocean health and ocean economy. Co-organized by PEMSEA, the Thailand Research Fund, and the Department of Marine and Coastal Resources (DMCR), Ministry of Natural Resource and Environment (MONRE) Thailand, the two-day forum introduced 10 national and 4 sub-regional State of Oceans and Coasts reports, or SOCs, which focused on the vital role that oceans and marine ecosystems play in economic development, trade, welfare, resiliency, and food, water and energy security across the EAS region. The participants concluded that business as usual is no longer an option in the face of changing environment and climate. They underscored the need to prioritize critical challenges and recognize economic growth and healthy oceans as compatible propositions. Interesting actions, innovations, and partnerships taking place in the region demonstrate the huge potential for blue economy, and workable solutions towards achieving sustainable oceans and coasts for all.

Overall, the Blue Economy Forum discussions highlighted the following key messages:

- Blue economy underscores the value of oceans as a key driver in overall sustainable development and provides an alternative economic strategy. Blue economy emphasizes the need to engage wider sectors/agencies beyond the environmental ministries, and to include planning, finance, statistics, fisheries, tourism, ports and various other agencies with ocean-related functions, as well as scientists, civil society, business/private sector, etc., in order to better gauge ocean contributions, impacts, challenges, tradeoffs and gains.
- The drivers and actions for blue economy contribute to key global objectives, especially the UN Sustainable Development Goals and SDG 14 or Life Below Water in particular.
- The development of regional and national State of Oceans and Coasts reports is a significant step beyond the traditional State of Environment reporting, in that the SOC looks deeper into the value and contributions of oceans and marine ecosystems to regional and national economies, livelihood and welfare; impacts of human activities; and linkages to various areas of investments; as well as highlighting intervention needs, policies and other governance mechanisms to respond to changing environments and climate.
- Regional ocean governance mechanisms play a crucial role in leveraging and promoting the institutionalization and sustainability of blue economy.
- Recognizing the different needs, priorities and capacities of various countries and sectors, a range of models and technologies can be applied to protect ocean health, and sustainably develop ocean economies.
- Science is integral to sound policies, laws and practices for ocean health protection and blue economy development.
- To be sustainable and effective, the ocean agenda needs to be operationalized at all levels of governance, including at the local level.
- The SOC reporting process provides a systematic and comprehensive approach to planning, monitoring and evaluating individual country as well as sub-regional and regional contributions to the ocean agenda.
- The SOC process will continue to improve and evolve over time with regular updates, as national ocean economy-environment accounting systems and methodologies are strengthened and harmonized.

1. Forum date, venue, and objectives

The Blue Economy Forum was held at the Miracle Grand Convention Hotel in Bangkok, Thailand on 14-15 November 2017.

The Forum was co-organized by PEMSEA, Thailand Research Fund (TRF), and the Department of Marine and Coastal Resources (DMCR), Ministry of Natural Resource and Environment (MONRE) Thailand.

The Blue Economy Forum aimed to:

- provide a venue for sharing knowledge, good practices and experiences, thus, enabling partnerships that can answer the call for sustainable and inclusive coasts and oceans;
- direct attention to the ongoing blue economy initiatives and solution options and to raise participants' awareness on the availability of alternatives for safe, resilient and sustainable coasts and oceans;
- highlight the need for enabling conditions to protect ocean health and enhance investments by governments and private sector in blue economy development.

2. Program

The Forum program is shown in Annex 1.The Blue Economy Forum consisted of the following sessions:

- Opening session, which included a keynote address given by the Permanent Secretary of MONRE, Thailand, Dr. Wijarn Simachaya.
- State of Oceans and Coasts (SOC): National, Sub-Regional Sea and Large Marine Ecosystems (LMEs)
- Navigating the paradigm shift: Oceans as natural capital and good business
- Blue Economy Projects in Thailand
- Making it happen: Blue solutions for protecting ocean health and communities
- Exploring social and environmental governance systems for blue economy
- Closing session, with presentations on the Regional SOC Report, and the Summary, Recommendations and Conclusions of the Forum.

3. Participants

There were 185 participants from various agencies from the international, regional and national level as well as representatives from NGOs, learning institutions and the private sector who joined the Blue Economy Forum. The list of participants is shown in Annex 2.

4. Opening Session

During the Opening Session, the following speakers delivered their respective messages:

- Dr. Wijarn Simachaya, Permanent Secretary, MONRE, Thailand;
- Dr. Suthipun Jitpimolmard, Director, TRF; and
- Mr. Stephen Adrian Ross, Executive Director, PEMSEA

4.1 Welcome and opening remarks

Dr. Simachaya welcomed all the delegates to the first regional Blue Economy Forum and emphasized the need for Asia-Pacific nations to lead in advancing the responsible stewardship of our oceans and the sustainable management of our ocean resources. Thailand, being one of the countries highly dependent on marine resources are encountering numerous environmental challenges which require integrated solution approaches. Thailand is also gearing towards attainment of UN Sustainable Development Goal (SDG) 14. In particular, Thailand is trying to link policies, legislations, strategies and action plans with key national goals such as in the 20-year National Strategy, 12th National Economic and Social Development Plan 2017-2021, etc.

Prof. Dr. Suthipun Jitpimolmard emphasized the role and commitment of the Thailand Research Fund (TRF) in supporting research approaches and policy implementation in accordance with the direction of national marine strategies and needs of relevant agencies. The Roadmap on Strategic Research (SRI) on National Interests and Marine Security (SRI 7) was developed with the objective to provide data for actions to protect national marine interests sustainably. The SRI 7 covers the period 2016-2018 and includes four components: (a) research and knowledge development; (b) policy mobilization and research utilization; (c) network building and developing new generation of researchers; and (d) development of database for national interests and marine security. Since 2016, TRF has funded the development of a framework guideline for sustainable economic development in Thailand. Dr. Suthipun emphasized that the Blue Economy Forum is not merely a capacity building or partnership event, it is a platform to move forward the value of blue economy to achieve sustainable oceans.

Mr. Ross highlighted the growing recognition of oceans as a priority factor in policy- and decision-making at global, regional and national levels. He emphasized that blue economy offers an alternative economic growth strategy for coasts and oceans that is aligned with the 2030 Agenda for Sustainable Development and the Sustainable Development Goals. The Blue Economy Forum provides a good platform to see where we are with regard to coastal and ocean development, the significance of ocean economies across the region, the experiences and opportunities, as well as the challenges to ocean-based blue economy growth in East Asia. He narrated how PEMSEA started its initiative and commitment to blue economy beginning from 2012, and the commitment from East Asian countries to develop a State of Oceans and Coasts (SOC) reporting system by 2018 for monitoring and reporting progress towards the regional ocean strategy, the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA). He further underscored the significance of SOC reporting compared to other traditional state of environment reports by looking at the roles and contributions of oceans to

regional and national economies, impacts to human activities, potential areas for investments, and the interventions/innovative mechanisms and policies responding to changing environments and climate. He urged all delegates to contribute in the discussions and to finalizing the documents or SOC reports on blue economy.

4.2 Keynote address

Dr. Simachaya's keynote address focused on the unacceptable losses and grim future ahead if no action is taken, thus, the need to focus on critical issues, such as: unsustainable extraction of marine resources and destructive fishing; habitat conversion and biodiversity loss; marine pollution, especially from untreated wastewater and microplastics; and climate change impacts. He encouraged the speakers and participants to show how governments, NGOs, private sector and communities are responding to these issues, and making strides in implementing blue economy initiatives. He provided the definition of blue economy based on the Changwon Declaration 2012[1] and emphasized that:

- The blue economy comprises a range of economic sectors, innovations, good practices and related policies that together determine the sustainability of our oceans and coastal resources. It is very much related to the Sustainable Development Goals or SDGs.

- Sustainable fisheries can be an essential component of a prosperous blue economy, with marine fisheries contributing more than US$270 billion annually to global GDP (World Bank 2012). Healthy fisheries, the growing aquaculture sector, and inclusive trade mean more jobs, increased food security and well-being, and resilience against climate change.

- Sustainable tourism can be part of the blue economy, promote conservation and sustainable use of marine environments and species, generate income for local communities, and help respect and maintain local cultures, traditions, and heritage. The sustainable development fostered by the tourism sector can trigger similar development in other economic activities and help protect the natural and cultural resources.

- Shipping provides the principal mode of transport for the supply of raw materials, consumer goods, essential foodstuffs, and energy. It is thus a prime facilitator of global trade and contributor to economic growth and employment, both at sea and ashore. New international regulations require the port and shipping industry to invest significantly in environmental technologies, covering issues such as gaseous emissions, liquid and solid waste, and ballast water management. These investments are not only beneficial for the environment, they may also lead to longer-term cost savings, and increased fuel efficiency.

- While billions of dollars are needed to clean up our coasts and waterways, and treat wastewater, "With clean rivers and environment, there will be more income from tourism, fisheries, and commercial and real estate development." Moreover, technology options and financing mechanisms are available to make wastewater management affordable and viable.

- Central to a transformational response to decades of overfishing, marine pollution, habitat conversion, and unplanned coastal development, is the need to move from purely sectoral marine and coastal management to an integrated approach that incorporates and integrates competing interests for oceans and coastal resources by various stakeholders, within a robust ecosystem-based management approach and through a marine spatial planning perspective.

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1 "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."

5. Session 1 – Part 1: National State Of Oceans And Coasts (SOC)

This session was chaired by Prof. Alistair McIlgorm, University of Wollongong, Australia, and co-chaired by Prof. Melanie Austen, Plymouth Marine Laboratory, United Kingdom.

Nine countries presented their respective National SOC Reports, namely Cambodia, China, Indonesia, Malaysia, Philippines, RO Korea, Thailand, Timor Leste, and Viet Nam. Singapore submitted an SOC Brief. The SOC presentations focused on: (a) the ocean economy and its contribution to GDP and employment; (b) valuation of ecosystem services; (c) coverage and condition of coastal and marine ecosystems; (d) marine environmental quality; (e) risks and threats; and (f) response in terms of policies, plans, and blue economy initiatives.

The ocean economy in the region contributes to the gross domestic product (GDP) or national economy of the countries in varying degrees: 3.3% in RO Korea, 7% in the Philippines, 9.5% in China, 21% in Viet Nam, 23% in Malaysia, 28% in Indonesia, 87% in Timor Leste. Oceans and the coastal and marine ecosystems also provide important goods and services, most of which are not accounted for in the GDP of countries, such as shoreline protection, carbon sequestration, etc. The values of the ocean economy and ecosystem services are shown in Table 1.

The region stands to lose these services if actions to strengthen the protection and management of coasts and oceans are not taken. "While there is no universally accepted definition of blue economy, it is PEMSEA's consideration that knowing the structure of the ocean economy, inclusive of ecosystem services, which represent the natural capital of the oceans, is critically important in the region's quest to move from a 'business-as-usual economic model' to a blue economy model," pointed out by Mr. Ross.

Table 1.

Country	Ocean economy (US$)	Value of ecosystem services (US$)	MPA (% of territorial waters)	ICM (% of coastline)
Cambodia		83.4 M	0.5%	100%
China	959.04 billion (in 2015)		3.3%	29%
Indonesia	182.54 billion (in 2015)	411.9 B	5.8%	47%
Malaysia	63 billion (in 2015)	17.7 B	2.3%*	(Port Klang)
Philippines	11.81 billion (in 2015)	17 B	2.5%**	
RO Korea	43.53 billion (in 2013)	40.5 B - 42.6 B	4.3%	100%
Singapore			1.5%*	100%
Thailand		36 B	5.2%*	5.46%
Timor Leste	1.97 billion (in 2015)	5.25 B	3.8%*	34.1%
Viet Nam	38.23 billion (in 2015)		1.8%*	

* *Source: World Bank 2016. The Little Green Data Book 2016.*

** *National Parks only*

Nine countries highlighted some of their blue economy initiatives in the fisheries, ports and shipping, and tourism sectors, as well as actions on pollution reduction, habitat restoration, biodiversity conservation, and climate resiliency (Table 2). In terms of coastal management, the marine protected areas (MPA) as percentage of territorial waters, and coastline with integrated coastal management (ICM) programs are shown in Table 1.

Table 2. Blue economy initiatives

Country	Blue economy initiatives
Cambodia	• Sustainable tourism in Sihanoukville: zoning of beach for business area, green space, public access, and sanitation facilities; solid waste management • Sustainable port in Sihanoukville: implementation of the Port Safety, Health and Environmental Management System (PSHEMS) • Solid waste and wastewater management in Sihanoukville: garbage collection and landfill; wastewater treatment plant
China	• Ecological Remediation Project of Mangrove Forests in Southern China, and Chinese Tamarix Forests in Northern China • Shandong province: artificial reefs; zoning for coastal sightseeing and fishing; and marine ranching for aquaculture, breeding of benthic fish, etc.
Indonesia	• Mangrove restoration and coral reef rehabilitation • Ecotourism and MPAs • PROPER program: compliance of industries to pollution regulations and awarding/recognition system • Green ports: PT Terminal Teluk Lamong • National Action Plan on Marine Pastic Debris, 2017-2025
RO Korea	• Wetland conservation sites • Marine protected areas • Sustainable fisheries: Fishery Resources Protection Zone; TAC program; Marine ranching • Comprehensive Plan for Green Busan Port • Coastal Total Pollutant Load Control System: in Masan Bay (2008); Siwha-Incheon (2013); Busan (2015); Ulsan (2017); Gwangyang (2019)
Malaysia	• Marine parks and ecotourism • Green ports • Sustainable marine aquaculture • Sustainable fisheries: stock assessment; management strategies e.g., zonation, gear based, licensing, monitoring and enforcement • Alternative livelihood: seaweed cultivation; tourism • Climate change response: National Coastal Vulnerability Index study; Implementation of the Integrated Shoreline Management Plan; Adaptation measures
Philippines	• Sustainable fisheries: amended Fisheries Code; ecosystem approach to fisheries management; 10-Year Plan of Action to address IUU fishing; registration of fisherfolk, fishing vessels and gears; conservation of blue crabs and swordfish; closed season for sardines and small pelagics; ban on sargassum and black corals • Sustainable tourism: National Ecotourism Strategy and Action Plan(2013-2022); Zero Carbon Resorts; Green Fins program; MPA/tourism branding; marine and coastal heritage sites and parks; • Ecosystem conservation: Mangrove and Beach Forest Development Project; coral reef rehabilitation; SmartSeas Program; MPA Network for sea turtles;

Country	Blue economy initiatives
Thailand	• Laem Phak Bia Project in Phetchaburi province: simple, natural, and low cost wastewater and waste treatment models ideal for Thai communities • Low carbon tourist destination project in Koh Mak, Trat Province: Using alternative energy, waste management, and preserve traditional way of life • Bor Hin farmstay in Amphor Sikao, Trang province: ecotourism, mangrove reforestation, Seagrass Seeding Bank • Crab Bank Model in Chumporn and Surat Thani: Education, Stock assessment and co-management with fisher communities
Timor Leste	• Sustainable fisheries and aquaculture: integrated system for tilapia, milkfish, etc. • MPAs: 3 MPAs in Atauro (Vila, Adara, Varuana); 5 MPAs in Nino Konis Santana National Park; new sites in Bobonaro • Mangrove rehabilitation • Solid waste management: Ecobank and Green School program
Viet Nam	• Mangrove restoration in Ca Mau and Tien Giang province (GCF) • Biodiversity conservation to respond to climate change (UNDP) • Green growth for 28 coastal provinces in Vietnam (UNEP)

Key Messages

- "You cannot manage what you cannot measure." It is essential to monitor the state of ocean health and contributions of oceans and ecosystems to national economy, employment, welfare, and resiliency so that they can be managed better, and environmental and economic sustainability is ensured.
- SOC reports with blue economy theme:
  - Create evidence-based policy platform
  - Build incremental change in government perception about the oceans in the overall sustainable development discourse
  - Increase understanding and appreciation of the blue economy
  - Demonstrate benefits, impacts and tradeoffs – important for convincing policymakers, budget and finance ministries, and economic development planners
- SOC Reports are a move beyond traditional marine environmental status reporting because they include the ocean economy and other socioeconomic aspects, blue economy initiatives, and supporting governance mechanisms.
- The SOC reporting system calls attention to the need for:
  - **Quality data:** on ocean economy, status and value of ecosystems, marine water quality, environmental and socioeconomic impacts, and environmental costs
  - **Clear methodologies:** for ocean economy accounts, natural capital accounting, and valuation of coastal and marine ecosystem services
  - **Capacity development:** for developing ocean economy accounts; valuation of ecosystem services and environmental damage; environmental monitoring; policy-making and action planning
  - **Engagement of various stakeholders:** from planning to implementation and monitoring; more collaboration is needed
  - **Communication strategy:** It is essential to increase visibility of oceans. There is a need for "elevator pitch" messages to build awareness and convince decision-makers.

6. Session 1 – Part 2: Large Marine Ecosystems (LMEs)

This session was chaired by Mr. Gordon Johnson, United Nations Development Programme (UNDP) Bangkok.

In addition to the country reports, the SOC session also examined the state of the LMEs in the region, namely, Sulu-Sulawesi Seas, Yellow Sea, Arafura-Timor Seas, and South China Sea. The presentations included the significant physical, biological, and socioeconomic features of the LMEs, major transboundary issues, regional strategies and national action plans (NAPs) and demonstrated best practices.

6.1 Sulu - Sulawesi Seas (SSS) (presented by Dr. Augustus Rex Montabon, Conservation International – Philippines)

The Sulu - Sulawesi Seas (SSS) comprise the Sulu-Celebes Sea Large Marine Ecosystem (SCS-LME), also called the Sulu-Sulawesi Marine Ecoregion (SSME) or the Sulu-Sulawesi Seascape under the Coral Triangle Initiative. It is an area of about 900,000 km^2 of marine resources. The SSS is located in the midst of three ASEAN nations – Indonesia, Malaysia and the Philippines. It is known for its high biodiversity (in terms of species composition and distribution, and unique species), rich fishing grounds, and extensive areas of mangroves, peat swamps, seagrass and coral reefs. However, there are various pressures, which affect these resources and ecosystems. The following are the major transboundary issues in the SSS:

- Unsustainable exploitation of fish
- Habitat loss and community modification
- Climate change
- Marine pollution
- Freshwater shortage
- Alien and invasive species

The Regional Strategic Action Programme (RSAP) on Fisheries Management focuses on the Ecosystem Approach to Fisheries Management (EAFM) of small pelagic stocks in the SSS, and embodies a set of regional targets, activities and indicators, and supporting national targets, under 6 themes:

- Science-based social and management interventions
- Resource valuation
- Monitoring, control and surveillance
- Information, education and communication (IEC)
- Livelihood development
- Capacity building

Examples of good practices and blue economy initiatives in the Philippines are shown in Table 3.

To protect the endangered sea turtles and provide safe havens, an initiative on sea turtle MPA network has been proposed at the CMS COP in October 2017. The following sites have been identified for the MPA network:

- Philippines: El Nido-Taytay, Palawan; Tubbataha; Turtle Islands; Balabac
- Indonesia: Bunaken National Park; Berau Marine Conservation Area
- Malaysia: Sipadan Islands; Tun Sakaran Marine Park; Turtle Islands Park; SIMCA and Tun Mustapha Park

Table 3. Blue economy initiatives of the Philippines in the Sulu-Sulawesi Seas.

	Projects, sites, and activities	SDGs being addressed
Habitat restoration and conservation; Marine debris	• SMARTSeas PH Project • Verde Island Passage (VIP) • VIP-wide network	SDGs: 5, 9, 13-17
Sustainable fisheries (seasonal closure)	• SMARTSeas PH Project • Balayan, Talin and Nasugbu Bays • Marine transponders (RADAR)	SDGs: 5, 9, 13-17
Great Greenwall of Mindoro	• SMARTSeas PH Project • Turing, JJSea, Oriental Mindoro ~350km • Modular infrastructure	SDGs: 5, 9, 13-17
Green-Grey Adaptation	• FFEM (French Global Environment Fund) • Concepcion, Iloilo • Modeling; Conservation agreements, tenurial rights system	SDGs: 5, 9, 13-17

6.2 Yellow Sea Large Marine Ecosystem (presented by Mr. Yinfeng Guo, Chief Technical Advisor and Project Manager, GEF/UNDP Yellow Sea Large Marine Ecosystem Project)

The Yellow Sea Large Marine Ecosystem (YSLME) is a water body bordered by China, RO Korea and DPR Korea, covering an area of 400,000 km^2. It is highly productive ecosystem, providing one million tonnes of capture fisheries and 14 million tonnes of mariculture per year. Rivers discharge about 1.6 billion tons of sediment and 1,500 billion tonnes of freshwater into the Yellow Sea annually. The flushing rate between Yellow Sea and East China Sea is once every seven years. This low flushing rate combined with the weak water circulation makes this sea vulnerable to pollution and degradation.

The following major transboundary environmental issues have been identified in the transboundary diagnostic analysis (TDA):

- Pollution and contaminants from industrial, agricultural and urban sources;
- Eutrophication due to increased dissolved inorganic nitrogen and phosphorus;
- Harmful algae blooms, when collapsed, causing oxygen depletion and consequent fish kills, and loss in mariculture;
- Fishing efforts exceeding ecosystem carrying capacity;
- Unsustainable mariculture with disease transmission and concentration of organic wastes;
- Habitat loss where 40% of coastal wetlands have been converted to other uses;
- Jellyfish boom which causes clogging of fishing nets and affect recreational activities;
- Changes in biomass and composition of phytoplankton and zooplankton communities that could have serious consequences for fishery productivity (Commercially important long-lived, high trophic level, piscivorous bottom fish have been replaced by the low-valued shorted-lived, low trophic level, planktivorous pelagic fish); and
- Climate change will affect the marine ecosystems in many ways, in particular the cold water mass overwintering by major commercial fish species located in the central southern part of the Yellow Sea.

A total of 23 potential priority areas (PPAs) have been identified in 2007, based on the assessment of habitat of endangered birds and marine mammals, fish spawning, nursery and feeding grounds, aquatic plants, invertebrates, mollusks, etc. In 2009, China and RO Korea signed the Strategic Action Programme (SAP) committing to take actions to achieve 11 targets to restore the ecosystem carrying

capacity of the Yellow Sea and its sustainable development. The YSLME SAP is being implemented through the Yellow Sea Partnership, consisting of governments at national and local levels, UN agencies and international organizations, NGOs, business associations, academia, etc. The YSLME Commission is the decision-making body of the Yellow Sea Partnership, currently consisting of China, ROK, UNDP and UNOPS. Conservation gaps covering fish spawning, nursery sites and feeding grounds are currently being reviewed with support from the YSLME Phase II Project.

Examples of actions and good practices (in line with blue economy):

- Designation of conservation areas and strengthening of the management effectiveness of existing areas are planned in China, such as the eelgrass bed of Dongchu Island.
- Efforts are being made by PR China and RO Korea to reduce fishing efforts and total catch, supported by expanded seasonal closure and area closure. In China, from 2017 onwards, closed season has been extended to 135 days (May 1 - Sept 16). In RO Korea, a fishing effort reduction programme was implemented from 1994 to 2013, wherein fishing vessels have been reduced to 18,560 with costs of 1.6 trillion KRW (~US$ 1.5 billion).
- In PR China, releases of hatchery-reared juveniles have been carried out for a variety of species to rebuild collapsed stocks. With improvements in release strategies, there are reports of more successful initiatives and higher survival rates.
- Deploying artificial reefs is also supported by national programs to enhance fish stock.
- 42 national marine ranching demonstration sites have been established in China.
- Integrated Multitrophic Aquaculture (IMTA) sites in PR China and RO Korea. The values of food provisioning service and climate/nutrient regulating service provided by the IMTA mode are much higher than in a monoculture system.

6.3 Arafura – Timor Seas (ATS) (presented by Mr. Duto Nugroho, Ministry of Marine Affairs and Fisheries, Indonesia)

The ATS is a semi-enclosed sea under the UN Conventional of the Law of the Sea (UNCLOS). It is bordered by Indonesia (Maluku, East Nusa Tenggara, and Papua), Papua New Guinea (South Fly district), Timor Leste (11 districts) and Australia (Western Australia, Northern Territory, Queensland). There are 4 million people in the provinces/districts/States of the ATS region.

The following are the priority transboundary issues reported in the transboundary diagnostic analysis of ATS:

- Unsustainable fisheries and decline and loss of living coastal and marine resources
- Modification, degradation and loss of coastal and marine habitats
- Marine- and land-based pollution (e.g. marine debris, sediments, oil spills)
- Decline and loss of biodiversity and key marine species
- Impacts of climate change, including ocean warming and ocean acidification.

Indonesia, Timor Leste and Australia have signed the Declaration on Strategic Action Programme (SAP) for the Arafura and Timor Seas Ecosystems Action (ATSEA). In addition to the regional SAP, Indonesia and Timor Leste have National Action Programmes (NAPs).

Table 4. Examples of blue economy initiatives and integrated approaches under ATSEA.

	Indonesia	Timor Leste	Papua New Guinea
Ecosystem approach to fisheries management (EAFM)	• Aru District (red snapper) • Aru District (shrimp)	• Viqueque Municipality (mackerel)	1 site: South Fly District
Fisheries Improvement Project (FIP)	• Aru District (red snapper) • Aru District (shrimp) • Merauke District (barramundi)		
Integrated Coastal management (ICM)	Rote Ndao District, NTT	Barique Subdistrict, Manatuto	
ICM - Climate change adaptation		Barique Subdistrict, Manatuto	
Ecosystem-based adaptation	Rote Ndao District, NTT		
Marine protected areas	• Southeast Aru MPA • Kolepon MPA	• Nino Konis Santana • South Coast MPA	
Pollution reduction	• Aru islands • Maluku • Rote Ndao	• Barique Subdistrict, Manatuto • Suai, Cova Lima	

6.4 South China Sea and Gulf of Thailand (presented by Mr. Jerker Tamelander, COBSEA Coordinator, and Head, Coral Reef Unit, UN Environment)

The South China Sea and Gulf of Thailand LME is bordered by eight countries. There are 270 million coastal people (5% of the world's population) in this LME. There are 122 major rivers draining 2.5 million km^2 of catchments.

Coastal communities are at risk from environmental degradation. There are two new projects supported by GEF:

- Implementing the Strategic Action Programme for the South China Sea, US$ 15M, project inception in Q1 2018;
- System of Fisheries Refugia in the South China Sea and Gulf of Thailand, US$ 3M, underway, executed by SEAFDEC.

These projects aim to:

- reduce coastal habitat degradation and loss
- improve management of critical habitat for transboundary fish stocks
- strengthen knowledge-based action planning for management
- facilitate regional and national integration and cooperation
- with a focus on target sites (26 mangrove, 82 coral reefs, 21 seagrass, 19 coastal wetlands, 23 fishery refugia).

Other initiatives of UN Environment:

- **Blue Carbon:** concrete, quantifiable mitigation and adaptation benefits; existing and emerging policy, financing mechanisms and incentives, markets ; GEF Blue Forest targeted research project
- ***Tourism:*** **Blue Finance** - A suite of projects is being developed in the Eastern Caribbean (2016-2020), aiming to: (a) Invest into management; (b) Increase natural capital; and (c) Create Blue Economy return on investment (ROI)
- ***Infrastructure development:*** + GEF Global Nitrogen Cycle project; Marine Litter project.

Mr. Tamelander pointed out that the LMEs are making a significant contribution to Blue Economy development, with the 2030 Agenda and SDGs providing new opportunities and policy space. However, there is a need for stronger Blue Economy framework and principles, focusing on: (a) sector-specific circumstances AND interactions and trade-offs between sectors (e.g. MSP); (b) financing/investment needs and incentives. He also encouraged the use of regional ocean governance partnerships for leverage in the following concerns:

- Regional prioritization; policy and capacity development; interventions
- Better understand and moderate risk
- Proof-of-concept and confidence building.

6.5 Key messages

- Shared resources in the LMEs require shared responsibility to address transboundary issues and foster blue economy development.
- Results from LME projects can be sustained beyond their project durations:
  - by institutionalizing innovations and lessons learned;
  - through stronger intergovernmental platforms and cooperation;
  - through iterative consultations, and
  - by establishing trust among countries and various stakeholders
- It is of utmost importance to strengthen regional and LME-wide ocean governance mechanisms to leverage and promote blue economy in the LMEs, including capacity development and incentives, and ensure continuity of commitments.

7. Session 2: Navigating The Paradigm Shift: Oceans as Natural Capital and Good Business

This session was chaired by Ms. Waraporn Hirunwatsiri, Senior Environment Specialist, East Asia and Pacific, The World Bank (Thailand).

Oceans provide an extensive range of natural assets and resources – natural capital from which humans derive a wide variety of ecosystem services that make life possible and upon which human activities rely. This session demonstrated how innovative industries are harnessing the natural capital of oceans, while ensuring economic growth, climate resiliency, and sustainability of the marine environment and resources as part of doing good business. The population growth in cities, rise of economies in Asia, habitat and biodiversity loss, declining fish stocks, pollution, water crisis, and climate change have converged to provide the platform for creating incentives for blue economy. The environment for ocean investments is changing, with new demands, and emerging market opportunities.

Five examples of key ocean economic sectors that are transforming towards blue economy were presented: **ecotourism and marine parks** (Malaysia); **ocean energy** (RO Korea); **green ports** (Malaysia); **climate-smart aquaculture** (Viet Nam); and **sustainable tuna fisheries** (Western and Central Pacific Fisheries Commission). This session showed how innovations in technologies, policies and management are

harnessing the potential of oceans while ensuring business returns, economic growth, social inclusion, and the sustainability of the marine environment and resources. Contributions to energy security, food security, tourism, travel, trade, and climate change mitigation and adaptation were also deliberated. Moreover, pragmatic approaches to mitigate negative impacts were highlighted during the discussions: know the interest of affected stakeholders, and show the benefits to them – income, jobs, investment opportunities, profits, good image, and clean living conditions – "what's in it for them" to get their buy in.

Ms. Hirunwatsiri emphasized that "to maintain the ocean economy's long-term potential for growth and job creation, integrated ocean management needs to be improved – including ecosystem preservation – at local, regional, national and international levels. This will require significant innovation and new thinking – in science, data, technology, R&D, manufacturing, infrastructural design, consultation and decision-making processes, institutional cooperation, and in the policy mix that governments implement to support and encourage innovative capacity in the ocean economy."

7.1 Ecotourism and marine parks: Malaysia (presented by Dr. Sukarno Wagiman, Director General, Department of Marine Parks, Ministry of Natural Resources and Environment)

The United Nations designated 2017 as the International Year of Sustainable Tourism for Development, providing an opportunity to showcase the tremendous economic, social, cultural, environmental, and heritage value that this sector can bring. There is a growing trend for the niche market of nature tourism, which includes protected areas and areas of wilderness. In realizing that marine ecosystems are fragile and are facing threat of destruction, Malaysia has developed policies and plans to ensure sustainability of its natural resources, including:

- The National Policy on Biological Diversity 2016-2025
- National Ecotourism Plan 2015-2025
- The Third National Physical Plan
- National Physical Plan for Coastal Zones

The aim of marine parks in Malaysia is to conserve marine biodiversity while promoting sustainable use. All marine parks are no-take zones where all types of fishing activities are prohibited. Only non-extractive activities and ecotourism are allowed. These marine parks are managed by the Department of Marine Parks Malaysia, Ministry of Natural Resources and Environment. Three other organisations managing marine protected areas in Malaysia are Sabah Parks, Sarawak Forestry Department, and Johor National Park Corporation.

To date, there are 42 marine parks in Malaysia with a total area of 2,486.13 km^2. Total coverage of MPAs within Malaysian waters is 3.36%.The marine parks have seen annual growth of tourist arrivals by 5% per year, from both domestic and international markets. Total expenditures of these tourists were estimated to be around US$70.9 million per year for marine parks alone. These receipts directly benefit the local communities on the islands as well as industry players in ecotourism.

By effectively managing the marine parks, the department has been able to maintain the coral reef health. Efforts include minimizing human impacts on coral reefs, such as:

- Managing ecotourism activities, and promoting best practices, e.g., Green Fins Programme, and training snorkel guides.
- Managing development on islands through stringent EIA processes
- Regular monitoring of reef health
- Education and awareness programmes
- Surveillance and enforcement
- Increase compliance through engagement with local communities
- Providing facilities that minimize impacts from recreational activities

7.2 Ocean energy: RO Korea (presented by Dr. Kwang Soo Lee, Principal Research Scientist, Korea Institute of Ocean Science and Technology)

Ocean energy offers an alternative to fossil-fired power plants. It has considerable long-term potential for economic growth, energy security and job creation. Since 2000, the Korean government has operated the national Research and Development (R&D) program for the development of technologies on tidal power (barrage), tidal current energy, wave energy, and ocean thermal energy conversion (OTEC). The R&D program has resulted in the construction of the Uldolmok Tidal Current Power Pilot Plant (1MW) in 2009, Sihwa Tidal Power Plant (254MW) in 2011, hybrid-OTEC power plant using multiple heat sources (200kW) in 2014, and Jeju Wave Power Pilot Plant in 2015; and Goseong OTEC/ SWAC Pilot Plant.

The Sihwa Tidal Power Plant has ten 25.4-MW turbines that can generate a total capacity of 254MW. It generated 496 MWh in 2015 and 2016. This power plant not only generated renewable clean energy, but also resulted in improved water quality and environmental recovery in Sihwa Lake; and enhancement of regional economy by forming waterfront and tourist attractions.

The first Tidal Current Power Project, with a capacity of 1MW was piloted in the Uldolmok channel. The project started in 1986 involving a series of comprehensive field measurements and numerical modelling.

The following are on-going R&D activities:

- Tidal energy converter (TEC) with active controlled horizontal axis turbines (HAT), including commercialization plan of TEC
- Floating pendulum wave energy converter (WEC)
- Breakwater-connected oscillating water column (OWC)
- Korea Wave Energy Test and Evaluation Center (K-WETEC)
- TEC Test Bed Project

The main funding institutions are the Ministry of Oceans and Fisheries (MOF) and Ministry of Trade, Industry and Energy (MOTIE). The energy policy (of the current President Moon Government) as embodied in the 2030 Strategy of MOF targets 20% of national electricity demand from renewable resources by 2030 for reducing CO_2 emission, solving fine dust issue, etc. Under this 2030 Strategy, the MOF plans to construct the total installed capacity of 1GW commercial plants to follow up the governmental energy policy, including 254MW tidal range, 120MW wave energy, 500MW tidal current energy and 200MW wave-wind / tidal current-wind hybrid energy by 2030. It was noted that the participation of the private sector has been increasing in these projects.

7.3 Green ports: Malaysia (presented by Ms. Cheryl Rita Kaur, Head, Centre for Coastal and Marine Environment, Maritime Institute of Malaysia)

Malaysia is committed to reduce its carbon emissions level by 40% from 2005 GDP levels by 2020. Ports facilitate 95% of Malaysia's international trade, and are expected to play a part to attain this target. As the nation's economy and trade grow, ports will be busier, and must therefore work at minimizing their emissions and pollution.

The Johor Port Authority has developed a Green Port Policy. Two Malaysian Ports have won the Green Port Award System of APEC Port Services Network (APSN). These are Port of Tanjung Pelapas, and

Westports, Port Klang. The following actions are being undertaken by these ports in line with their green ports initiative:

- Study of fuel quality of ships in ports
- Shore power to reduce emissions in Malaysian Ports
- Energy, electricity and fuel saving: to reduce diesel consumption, and greenhouse gas emissions
- Tackling oil and chemical spills
- Environment initiatives: adopting marine sanctuary area; collaborating with Malaysian Nature Society; beach cleaning; mangrove planting; environmental monitoring, and waste management
- Port Safety, Health and Environmental Management System (PSHEMS) in Port of Tanjung Pelapas, facilitated by PEMSEA under the SDS-SEA Project
- Ballast water management: Collaboration with Malaysia University to conduct baseline study of ballast water management at designated ports on bacteria in water samples, and heavy metals, hydrocarbons and marine biological in seawater and sediment samples

7.4 Climate-smart aquaculture: Viet Nam (presented by Dr. Cao Le Quyen, Director, Vietnam Institute of Fisheries Economics and Planning, Ministry of Agriculture and Rural Development)

Climate-smart aquaculture (CSAq) is being applied in Viet Nam in recirculating aquaculture systems (RAS); and integrated aquaculture systems, such as: (a) integrated shrimp-tilapia-seaweed in North Central Coast. Vietnam; (b) shrimp-rice systems in Mekong Delta; (c) rice-fish; (d) shrimp-mangrove; and (e) clam-mangrove. CSAq involves six components:

- Smart management practice
- Smart seeds (tilapia, shrimp...)
- Smart aquafeeds (pellet feeds)
- Smart facility and system integration
- Smart business and entrepreneurship
- Smart site selection and zoning

The CSAq has shown evidence of contributing to food security, climate adaptation/resilience, and mitigation:

- Food security: diversification of household' income, productivity, and cost efficiency; increased availability of fish for local consumption
- Climate adaptation/resilience: increase in resilience by creating sustainable income sources even if shrimp crops fail.
- Mitigation: reduced pellet feed use in tilapia culture with feed conversion ratio (FCR) of 0.2- 1.06; cleaner ponds with wild weeds and wastes in shrimp ponds removed by tilapia (which also reduced risk of disease for shrimps); and reduction of other inputs, e.g., feed, seed, chemical, medicine, labor, etc.

Dr. Quyen recommended the following actions to scale up CSAq and address current constraints:

- Re-enforce evidences of CSAq system feasibility in North Coastal Central of Vietnam;
- Establish marketing linkages between CSAq farmers with input supplying and processing enterprises;
- Develop and disseminate Technical Guidelines for CSAq practices in the region;
- Establish Revolving Fund for local Cooperatives to provide smart inputs;
- Establish Microfinance Fund for the local Women Union to support input supply and product marketing;
- Scale up CSAq to about 1,000 local households in Central Coastal Region;
- Promote CSAq branding/labelling.

7.5 Sustainable tuna fisheries (presented by Mr. Noel Barut in behalf of the Western and Central Pacific Fisheries Commission)

The West Pacific East Asia (WPEA) Oceanic Fisheries Management Project is being undertaken in three countries: Indonesia, Philippines and Viet Nam, as part of the implementation of the Convention of Highly Migratory Fish Stocks in Western and Central Pacific Ocean. The focus of the project is on sustainable harvesting and trade of key tuna species: skipjack, yellowfin, and bigeye. Mr. Barut mentioned the following initiatives supporting blue economy for sustainable tuna fisheries, and enabling policies:

- Improvements in data collection (both target and bycatch)
  - Port sampling, landed catch, logbook, observer programme, vessel monitoring system (VMS)
  - Improved sub-regional stock assessments
- Capacity Building: Science, compliance and management
- Development of Harvest Strategies: Reference points and harvest control rules being developed in the three countries
- Fisheries management: For example, updating of the Philippine Fisheries Code in 2015; adoption and mainstreaming of EAFM; combatting IUU fishing
- Market-based solutions
  - tuna supply chain analyses
  - catch documentation and traceability (CDT)
  - eco-labelling, certification
- Partnerships and donor support: WPEA project, NZ Government, GEF-financed Areas Beyond National Jurisdiction (ABNJ) programme, etc.
- Private sector incentive mechanisms
  - WPEA project supporting adoption of market-based approaches
  - Fisheries improvement projects (FIPs), e.g., in collaboration with WWF in Viet Nam
  - Marine Stewardship Council certification longer term goal
  - Proactive Vessel Register (PVR)
- WPEA project portal and M&E system: under development

7.6 Key messages

- There is a need to transform the 'growth' paradigm to sustainable and inclusive blue economy, and highlight the value and contribution of natural oceanic capital to guide the policy decisions that consider trade-offs and complementarities of different ocean sectors, environment protection and resource conservation.
- Impacts on the marine environment and resources should be taken into consideration from the design stage to final output to disposal (i.e., strategic environmental impact assessment and economic feasibilities undertaken in developing new technologies).
- Important drivers for success:
  - Money: Show what's in it for business and communities to get their buy-in – higher income, savings, livelihood, improved health, improved surroundings and living conditions
  - Good image is good for business.
- Private sector involvement in blue economy is crucial. Public and private partnership is important to move blue economy forward.
- It is integral to find balance between growth of commercial sectors and environmental protection.
- Sometimes compliance with international commitments can be very costly, but good practices reap more benefits in the long-term.
- Education and public awareness are crucial to have transformational change.
- Various investment approaches and opportunities are available (i.e., CSR, market-based approach, incentives, regulations, etc.).

8. Session 3: Blue Economy Projects in Thailand

This session was chaired by Dr. Nawarat Krairapanond, Director of Environment Fund Office, Office of Natural Resources & Environmental Policy and Planning (ONEP), Ministry of Natural Resources and Environment (MONRE), Thailand.

The Thailand Research Fund (TRF) has supported a number of projects related to blue economy development. The four research projects presented in this session are being implemented with funding from TRF.

8.1 Economic Value of Mangrove Ecosystem (presented by Dr. Orapan Na Bang Chang, Associate Professor, Sukhothai Thamathirath Open University)

This project focuses on the assessment of the economic value of the mangroves. Direct use value (fisheries), indirect use value (shoreline protection), and non-use value were measured. For the direct use value of mangroves, data on artisanal fisheries were collected from the 810 households in 27 villages in mangrove areas in five provinces, namely, Samut Songkram, Surat Thani, Trad, Ranong, and Phang Nga. For the indirect use value, a damage function was used. Mangroves provide shoreline protection to coastal communities during storms, and in the face of climate change. For non-use value, the contingent valuation method (CVM) was applied, and 186 people in Metropolitan Bangkok were surveyed. It was found that the average willingness to pay (WTP) for mangrove conservation is 191.95 baht/household. The significant factors influencing WTP are the bid price and income level.

8.2 System of Environmental-Economic Accounting for Blue Economy in Thailand (presented by Dr. Watcharin Meerod, National Center for Genetic Engineering and Biotechnology [BIOTEC])

This project has two main objectives: (a) developing the framework of the System of Environmental-Economic Accounting for Blue Economy (SEEA-Blue Economy) in Thailand; and (b) assessing the availability of data for supporting SEEA-Blue Economy. The research will conduct the value assessment of Blue Economy activities, and focuses on two pilot sectors, namely fisheries and tourism. Using the SEEA Central Framework Account (2012), three accounts are considered: physical flow account; environmental activity accounts; and related flows and environmental assets. The data will be derived from these three accounts, including the data on physical supply and use tables, budget for environmental protection and restoration, stock and flow of associated environmental assets, and total economic value (direct use, indirect use, and non-use values), which will be used to develop "GDP – Blue SEEA". From the preliminary findings, it is found that government agencies lack up-to-date data to develop the SEEA, and lack the continuity of data, such as data on the cost of environmental/depletion data of physical changes of mangrove, coral, seagrass resources and total economic value of marine ecosystems.

8.3 Potential Development for Blue Economy of Coastal Provinces in Thailand (presented by Dr. Niramon Sutummakid, Associate Professor, Faculty of Economics, Thammasat University)

This research project aims to classify the value of coastal and marine/ocean-related economic activities from Gross Provincial Product (GPP) and to present an overall analysis of coastal provinces development direction toward Blue Economy or potential development to be Blue Economic Zone. Data on economic activities using marine and coastal resources were collected from 24 coastal provinces. The collected data consist of Gross Provincial Product (GPP) of coastal provinces; economic value of utilizing marine and coastal resources; and provincial indicators representing blue economy. Furthermore, the research also explores the possibility of expanding Blue Economy businesses, and trends. From the field visits to observe economic activities and interview of 19 local representatives in coastal provinces, the preliminary findings point out that provincial development should be done in the form of mutual agreements between production sectors in each province. The concept of blue economy and green

economy is new and not yet known in many areas, while marine and coastal resources management is linked to freshwater management and undertaken by many authorities. For the next stage of implementation, the research team will conduct an in-depth study on limitations of business sectors to do Blue Economy businesses, as well as gather more economic, social and environmental data in seven pilot provinces.

8.4 Thailand Blue Economy Zoning (presented by Dr. Adis Israngkura, Associate Professor, Thailand Development Research Institute [TDRI]).

This study examines Blue Economy zoning in the Gulf of Thailand because of the overlapping uses of areas by economic activities in many sectors, such as agriculture, tourism and fishery. Furthermore, central and local government agencies responsible for managing coastal and marine areas also face overlapping authority. As such, it is imperative to conduct the study to seek shared and common ground among different agencies. In this study, there was a review of data used for determining areas that are related to marine and coastal resource management. The data cover Inland Economic Zone and Exclusive Economic Zone (EEZ); Marine Resource Zone, and administrative zone. In order to collect those data to establish the Blue Economy Administrative Unit, two zoning hypotheses were considered. Zoning Hypothesis A is for the overlapping zones of economic activities. Zoning Hypothesis B is for the Mutually Exclusive Zone between the Western economy zone and the Eastern economy zone.

8.5 Key messages

During the discussion, the participants pointed out two key points:

- Understanding of central, local government agencies and the public about Blue Economy and SEEA-Blue Economy should be enhanced.
- Thailand still lacks data on economic value on coastal and marine resources, especially on indirect use and non-use values.

9. Session 4: Making It Happen: Blue Solutions for Protecting Ocean Health and Communities

This session was chaired by Mr. Jerker Tamelander, UN Environment, and Coordinator for the Coordinating Body for Seas of East Asia (COBSEA), and co-chaired by Dr. Hugh Kirkman, former head of COBSEA.

Session 4 drew attention to actions on: (a) **protecting coastal and marine ecosystems** through marine spatial planning (MSP), marine protected areas (MPAs), community-based and co-management approaches, alternative livelihood, and partnership with private sector (e.g., hotel, water utility); (b) **addressing illegal, unregulated and unreported (IUU) fishing** through electronic catch documentation and traceability system, ecosystem approach to fisheries management (EAFM), and partnership with private sector (e.g., fishing boat operators, markets, fish processing industries, etc.); and (c) **mitigating marine pollution** through wastewater and septage management (Maynilad company as an example of PPP and private sector investment). Blue carbon for climate change mitigation and adaptation was also explored. Such blue economy initiatives contribute to the achievement of SDG 14 targets, and provide concrete, practical and doable examples, which can be adopted and replicated across the region. Integrated approaches and collaboration among various institutions, sectors and stakeholders underline these initiatives.

9.1 Marine spatial planning and marine protected areas (presented by Dr. Hugh Kirkman)

Ocean and coastal resources are being limited in space in the region, and the pressure on the marine environment, resulting from an expansion of existing uses and the rise of new ones, has been devastating in many places. Management of Southeast Asian coasts and ocean through integrated coastal management (ICM) and marine spatial planning (MSP) coupled with ecosystem-based management (EBM) has been documented. It requires integration and multi-level governance for regional marine strategies. Uses that must be integrated include fisheries, shipping, marine protected areas and aquaculture. Good MSP requires coordination, understanding and goodwill of all stakeholders. Conflicts arise when uses are not compatible with one another and are competing for ocean space or have adverse effects on each other (user vs. user conflicts), or when uses are not compatible with the needs of a healthy and sustainable environment and cause conflicts between users and the environment (user vs. environment conflicts). Transboundary cooperation is well advanced in some places, but more integration should be considered. Countries in the region do not always have compatible policies with each other or with overlapping EEZs.

Marine protected areas are an important part of MSP and have to come into consideration as more and more of the oceans' waters and substrates are exploited. Management requires monitoring, evaluation and recording. Efforts to conserve marine biodiversity using international agreements and conventions, and "soft law" were discussed.

9.2 Business, co-management and mangrove conservation (presented by Alex McWilliam, Programme Manager, Knowledge and Sustainability, IUCN-Mangroves for the Future)

Mr. McWilliam discussed some examples of the work of Mangroves for the Future (MFF) in the areas of co-management of mangrove areas and engagement with the private sector that contribute to Blue Economy at local levels. Given that MFF's work is driven by national planning and priorities, and is based on a Resilience Approach, there is a wide range of projects related to the achievement of several Sustainable Development Goals (SDGs), especially SDG 14.

Co-management is a process-based management and governance approach to natural resource management. Two examples where co-management has been introduced by MFF to improve sustainable management of coastal resources were presented: (a) clam collection in Xuan Thuy National Park, Viet Nam; and (b) mangrove restoration in Gabura, Bangladesh.

Xuan Thuy National Park is a coastal national park, and Viet Nam's first Ramsar site. Following a series of consultations led by the park's management board, a Women's Fishing Group was established to represent the interests of the nearly 500 women collectors of clams in the area. The women's group and the authorities then set about negotiating a co-management policy with regulations and licensing determining what can be collected, in which areas, at what times, and using what methods. A peer-based monitoring system was established to help park authorities regulate compliance. The local government established a Livelihood Improvement Fund whereby women could take small loans to make opportunities to diversify the income base with the idea of reducing the amount of clams they need to collect in Xuan Thuy. This co-management arrangement between the park authorities and the collectors established a win-win situation for both. For the collectors, they secured user rights to a critical resource and now actively participate in the co-management system. For park authorities, they mitigated a growing conflict situation, and now the collectors are an ally in the sustainable management of the area.

On the island of Gabura Union on the fringe of Sundaban, the largest mangrove forest in the world, a Community Management Committee (CMC) was formed, and officially recognized by the government to represent the communities in the co-management arrangement. Zoning and regulations were completed to allow natural regeneration, while in particularly degraded areas, mangroves were planted. More than 60 ha of mangroves were rehabilitated under this collaborative arrangement.

CMC is also engaged in monitoring the rehabilitation areas and fishing practices. As the mangroves returned, so did other resources like fish, shrimps, crabs, etc. The CMC also worked with the local government authorities to establish a benefit sharing mechanism for the resources collected in the mangrove areas: 15% to the government (to support community infrastructure, such as schools and freshwater system), 40% to the CMC (maintenance and expansion cost), and 45% to the collector.

Since many private sector actors in coastal areas are dependent on coastal resources for their business, the logic to engage the private sector speaks for itself. The Marriott company is an example of how a private sector entity can contribute to coastal conservation and integrate supporting local economies and livelihoods in coastal areas near the Marriott properties. The IUCN-Marriott partnership has 3 main components at this stage;

- **Mangrove restoration**: Marriot collects donations from hotel guests to support mangrove restoration in four target areas in Thailand. Seven hectares were reforested in 2016.
- **Sustainable seafood sourcing**: IUCN works with Marriot to identify and source sustainable seafood directly from local communities nearby their properties. For example, in 2016, two Marriot properties sourced more than US$ 45,000 in seafood from 40 families in 3 villages around the properties.
- **Sourcing of local products as gifts and souvenirs.** IUCN also works with Marriot to source local handicrafts to be used at Marriot properties. Four of their properties present welcome bracelets to their guests. In 2016, Marriot purchased US$ 30,000 in bracelets from 26 families in a village near their Phukhet property.

9.3 Electronic catch documentation and traceability system to address IUU fishing (presented by Geronimo Silvestre, Chief of Party, USAID Oceans)

Illegal, unreported and unregulated (IUU) fishing has been identified as a leading threat to the health of fish stocks and ecosystems. IUU fishing is driven by insufficient fisheries management, and a lack of transparency in terms of how, where, and by whom seafood products are being caught. Catch methods are often not verified, and on the market side, fisheries products are commonly mislabeled. At the core of the Oceans and Fisheries Partnership of the United States Agency for International Development (USAID) is the development of a transparent and financially sustainable electronic Catch Documentation and Traceability (CDT) system to help ensure that fisheries resources from Southeast Asia are legally caught and properly labeled. This supports efforts on fisheries management and marine biodiversity conservation. There are two pilot sites: General Santos City, Philippines, and Bitung, Indonesia.

With CDT, the full "path" of a traceable seafood product can be followed: at sea capture and fishing boat, fish landing, on land transport, seafood processing, export, second processing, import and retail, to the consumer's plate. Each stakeholder group (i.e., harvesters, processors, cold chain/operators, wholesalers, retailers, technology suppliers, ports/authorities, fisheries regulators, customs agencies, and NGOs) represents unique perspectives and interests regarding supply chain traceability. The CDT system involves capturing and exchanging data reliably within such a diverse environment of supply chain actors government agencies and NGOs, and incorporating their diverse needs and perspectives. With CDT, data from these various stakeholders are stored in a data exchange server, and piles of paperwork are transformed into one efficient digital system. CDT also supports the Partnership's complementary efforts, such as the EAFM, public-private partnerships (PPP), human welfare including gender equality, and regional coordination.

9.4 Cost effective and innovative wastewater and septage management (presented by Francisco Arellano, Senior Technical Consultant and Practice Leader for Water, Office of the President, Maynilad Water Services, Inc.)

The Maynilad Water Services, Inc. is a private sector company, and one of the concessionaires in Metro Manila, Philippines. It provides water services to 9 million people, and handles their wastewater as well.

Its total investment for wastewater management during the concession period, 1997-2037, is estimated to be around PhP 148 billion = US$ 3 billion.

Key challenges in wastewater management in Metro Manila:

- Cost of managing domestic waste is very expensive (collection, conveyance, treatment plant, sludge management, outfall)
- Right-of-way and permits of conveyance systems
- Land availability/space and physical concerns
- Informal Settlers along river banks and easements
- Community acceptance of sewerage and wastewater treatment projects
- Technical: separate system vs. combined sewer-drainage system; centralized system vs. small systems (decentralized); technology
- New regulations (e.g., nutrient removal)
- Reuse applications: water reuse; production, treatment and reuse of biosolids; waste to energy
- Public participation in planning
- Carbon sequestration initiatives

Mr. Arellano presented the variety of technologies being applied by Maynilad in its various wastewater treatment plants (e.g., waste stabilization ponds, conventional activated sludge (CAS), sequential batch reactor (SBR), moving bed biofilm reactor (MBBR), and STM aerator biological nutrient removal), and the corresponding costs (capital, operating and maintenance costs), and land area requirement. To ensure viability and cost effectiveness, technology choice is based on certain criteria and key performance indicators, such as process robustness; process efficiency; compact footprint; ease of operation and maintenance; potential for expansion; potential for upgrading to new standards. For septage management, Maynilad has 45 vacuum truck units, four mobile dewatering units, and three treatment plants. The biosolids is applied in commercial sugarcane farms. Biogas is not feasible.

As part of its corporate social responsibility (CSR) program, Maynilad is also undertaking initiatives in co-managing the watershed where it gets the water supply, and mangrove reforestation to contribute to carbon sequestration. The mangroves also resulted in mud crabs and shrimps returning in the area, giving alternative income to the families living near the mangrove areas.

9.5 Key messages

- MSP requires integration of various sectors and interests, and 'pleasing' the stakeholders.
- Identify shared values and shared benefits clearly as it is easier to get things done.
- Various models (fisheries and coastal management) and technologies (wastewater management) are available:
  - No 'one size fits all' exists. There is a need to adapt to context.
  - Legal basis and institutional arrangements have to be put in place.
- Show concrete, practical and doable examples.
- Ensure viability by ensuring that there are returns to be made.
- Showing the monetary returns and other benefits to be obtained is crucial to convince policymakers and the public to approve initiatives like MSP, CDT, mangrove and coastal resource conservation, wastewater management, etc.
- Put in place enabling conditions to make each one be a part of the solution.
- Convince general public by appealing to their conscience and their pockets.

10. Session 5: A Dialogue with Policy- And Decision-Makers: Exploring Social and Environmental Governance Systems for Blue Economy

Insightful discussions on ways to seek support for blue economy investments from governments, development partners and the private sector were made during this session chaired by Atty. Roberto Oliva, ASEAN Center of Biodiversity. The presentations delved into the national ocean policies of Indonesia, Thailand and Japan as well as enabling conditions for the achievement of the SDGs, and for blue economy development in the fisheries, ports and shipping, tourism, and marine renewable energy sectors. During the discussions, it was suggested to use the SOC reports for monitoring progress and outcomes. Moreover, the Blue Economy Forum was proposed to be held on a regular process, and used as a mechanism to monitor ocean health and ocean economy, identify growth potential and investment opportunities in strategic industries, and promote supporting policies to enable blue economy development.

10.1 UN Sustainable Development Goals and Blue Economy (presented by Gordon Johnson, UNDP Bangkok)

Mr. Gordon Johnson explained the rationale for the SDG on oceans, considering that this was not one of the MDGs. Globally, oceans contribute:

- US$3 trillion to the global economy
- US$ 100 billion in fisheries and aquaculture
- US$ 271 billion in tourism
- US$ 900 billion in offshore oil and gas

However, oceans are at risk, affecting the global economy, and key ecosystem services.

- 80% of global fish stocks are fully exploited; over-exploited or collapsed
- 30% increase in ocean acidity over the last 50 years
- 500 coastal hypoxic areas have been identified
- 10-20 million metric tonnes of plastics are entering the oceans
- 20% of the world's coral reefs have been lost, and 20% degraded
- Invasive aquatic species cost US$100 billion

The following are the SDG 14 Targets:

1. Reduce marine pollution.
2. Sustainably manage marine ecosystems.
3. Minimize ocean acidification.
4. Regulate harvesting, and end overfishing.
5. Establish marine protected areas.
6. Curtail fisheries subsidies.
7. Increase benefits to SIDS/LDCs

a. Increase scientific knowledge, research capacity, transfer of technology
b. Provide access for small-scale artisanal fishers to resources and markets
c. Implement the UN Convention on the Law of the Seas

Indicators have been developed for each target. Monitoring of these targets and indicators in the East Asian region can be accessed at www.data.unescap.org/sdg/#data/.

10.2 Indonesia's Ocean Policy (presented by Mr. Arief Yuwono, Adviser to the Minister, Ministry of Environment and Forestry, Indonesia)

The Indonesian Ocean Policy is embodied in the Presidential Decree Number 16 of 2017 issued on 20 February 2017, which provides the guideline for ministries and non-ministerial institutions and local governments to plan, implement, monitor, and evaluate the development in the maritime sector and implement the Global Maritime Fulcrum. The Roadmap of the Indonesian Ocean Policy towards Global Maritime Fulcrum has 7 pillars, with 75 policies/strategies. It is based on six principles: 1) Wawasan Nusantara, 2) sustainable development, 3) blue economy; 4) integrated and transparent management; 5) participation and 6) equality and equitability.

The Global Maritime Fulcrum is the vision of Indonesia to become a sovereign, advanced, independent strong maritime nation that is able to provide positive contribution for peace and security of the region as well to the world in accordance with its national interests. Blue Economy is considered as a model for economic development which integrates land and maritime development while taking into account the carrying capacity of natural resources and environment.

The Plan of Action 2016-2019 focuses on:

- Maritime Industry and Sea Connectivity;
- Services and Industry of Natural Resources and Marine
- Environment Management
- Maritime Boundary, Open Space and Maritime Diplomacy
- Maritime Defence and Security
- Maritime Culture

10.3 Thailand's National Act on Promotion of Marine and Coastal Resources Management (presented by Mr. Dhana Yingcharoen, Director, Department of Marine and Coastal Resources, MONRE, Thailand)

The National Act on Promotion of Marine and Coastal Resources Management of Thailand consists of 30 sections, focusing on the promotion of:

- **Integrated and sustainable management** (1-4, definition) (5-15, national or provincial committee):
  - Involves the establishment of the National Policy and Planning Committee on marine and coastal resources management. The Committee consists of the Deputy Prime Minister as chairperson, Minister of MONRE as vice-chairperson, representatives from all concerned ministries, and qualified scholars.
  - The integrated work of marine and coastal resources management was also applied to 24 coastal provinces by establishing Provincial Committees on Marine and Coastal Resources.
  - The provinces will develop their own policy and plan for the management of marine and coastal resources with participation of all stakeholders.

- **Public participation** (16):
  - In section 16, it is stated that DMCR shall provide assistance and support to coastal communities to encourage the participation of the communities and the local administrations in the formulation of national and provincial policies and plans on marine and coastal resources management.
  - DMCR will also give advice to the communities and resource conservation network on the management, planning, maintenance, conservation, restoration and exploitation of marine and coastal resources.
- **Protection of marine and coastal resources** (17-23):
  - In section 17, DMCR will protect marine and coastal resources by declaring measures when it appears that any person causes severe damage to marine and coastal resources. The Director-General shall have the power to order such person to stop an action or activity immediately. These marine and coastal resources include mangrove forest, coral, sea-grass, and beaches or coastal area that eroded by human activities.
  - The Minister of MONRE shall have the power to issue the Ministerial Regulation to the area that will be designated as marine and coastal resources conservation or protected area.
- **Regulation and enforcement** (24-30): provides direction how to enforce the regulations, and penalties for violations and failure to comply with laws and regulations.

10.4 Japan's Basic Act on Ocean Policy (video presentation by Mr. Masanori Kobayashi, Senior Researcher, Ocean Policy Research Institute of the Sasakawa Peace Foundation)

The Basic Act on Ocean Policy was enacted in 2007, and the first Basic Plan on Ocean Policy was adopted in 2008. The basic plan is updated/revised every five years. The third revised Plan will be adopted in 2018. The following are the 12 policy measures:

- Promoting the development of marine resources and use
- Promoting the marine environment
- Promoting the development of Exclusive Economic Zone
- Securing maritime transport
- Assuring marine safety
- Promoting scientific research
- Promoting research and development related to marine science and technology
- Advancing marine industry and strengthening its international competitiveness
- Promoting integrated coastal management
- Conserving remote islands
- Promoting international partnership and cooperation
- Enhancing public understanding on oceans

In connection to ICM, the Basic Plan of 2013 provides four priority policy goals:

- Promoting ICM by considering local characteristics, and assisting local governments
- Promoting ICM in conjunction with terrestrial management
- Promoting ICM in enclosed coastal areas
- Coordinating the use of coastal areas

In response to the Basic Act and Basic Plan, local governments have undertaken measures to promote ICM, and local coastal policies. The adoption and application of the Basic Act in Taketomi-cho, Okinawa Prefecture was given as an example of local implementation. The priority action areas, including ICM in Taketomi-cho, and the challenges encountered during implementation were also explained.

10.5 Policies Supporting Blue Economy Development in the Ocean Sector (presented by James Mitchell, Consultant, PEMSEA)

Mr. Mitchell described the contributions, major issues, key policies (international conventions and national laws and policies), and notable actions being done by various countries in the following sectors:

- Shipping & Ports
- Fisheries & Aquaculture
- Sustainable Tourism, Ecotourism, and Coastal Development
- Marine Pollution from Land-Based Sources

Recommendations to address policy gaps, and measures to strengthen blue economy development in these sectors, and improve ocean health were also explained (Table 5). Four Policy Review Briefs were drafted for the following sectors: (a) ports and shipping; (b) fisheries and aquaculture; (c) coastal and marine tourism; and (d) marine renewable energy.

Table 5. Recommendations to support blue economy

	Recommendations
Ports and shipping	• Adopt a uniform set of blue economy standards for all ("green ships") • Allow for flexibility in how standards are to be met – enforce via blend of incentives and command-and-control instruments • Regional shipping companies and shipbuilders to require minimum port standards in the areas of efficiency and cost reduction
Fisheries and aquaculture	• Fisheries data collection and sustainable management plans • Use trade sanctions or strengthen import controls to ensure legal and sustainable products from exporting countries • Well-managed MPAs • Invest in innovative R&D to address key challenges in aquaculture sector • Explore value-added processing to generate more wealth for locals
Marine tourism	• APEC: recommends regional cooperation on responsible codes of conduct for travel providers and best practices • Use policy instruments, such as MSP, and regulations on waste management and habitat protection, and application of market-based instruments (e.g., taxes, awards) • Consider how blue carbon trading schemes can dovetail with ecotourism and MPAs • Inclusive planning and EIA necessary before any tourist-related development. • Ensure public access to beachfront and provide ways for locals to benefit from sustainable tourism.
Marine pollution	• Make wastewater a resource. • Accelerate waste management solutions to reduce marine litter and plastic debris • Initiate Extended Producer Responsibility (EPR) schemes and incentives: manufacturers and importers should bear the costs of reuse or disposal

10.6 Key messages of this session

- Connection/disconnection between national policies and international goals (SDGs, SDG14) is a major challenge. Harmonization of international goals and national policies and laws is needed.
- Use science and data to underpin laws and socioeconomic development policies and plans.
- We must get commitments from political leaders and finance ministries to prioritize the ocean agenda.
- Ensure inter-agency coordination and stakeholder involvement. Find synergies and areas for collaboration, but not to the point that nothing gets done.
- Regulations backed by funding, and enabling conditions to support partnership with private sector are essential.
- Raise the ocean agenda in international and national conferences.
- Operationalize the ocean agenda at the local level.
- Invest in people and jobs; human resource and capacity development – scientists, planners, managers, regulators.
- Use the information from the SOC reports and Blue Economy Forum for countries to develop policy on blue economy in the future.
- Use SOC as platform to monitor progress towards achieving the SDGs. We need to do better each year!

11. Closing Session

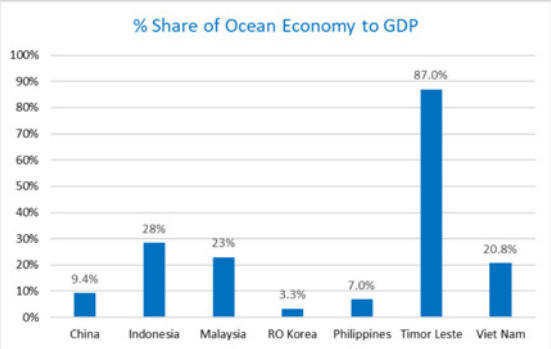
11.1 Regional SOC Report (presented by Maria Corazon M. Ebarvia, Project Manager [consultant], PEMSEA)

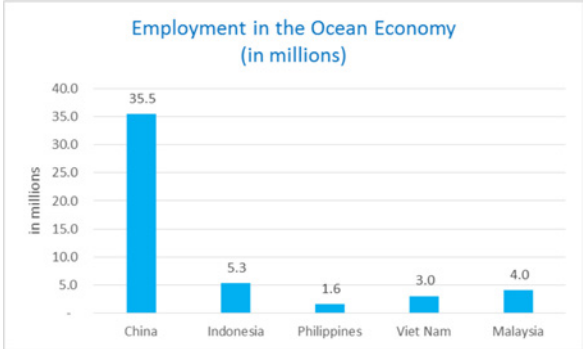
Following the different sessions, Ms. Ebarvia presented a synthesis report based on initial information generated from the draft National SOC reports and LME reports. In particular, the synthesis showed the estimated contribution of the ocean economy to the GDP and employment in selected countries, valuation of ecosystem services, and the implications for policy, planning and management. Special attention was devoted to the blue economy initiatives and emerging industries in light of their high growth, investment and innovation potential, and contribution to addressing challenges, such as food, water and energy security, environment, and climate change. Such initiatives also show progress by the East Asian Seas region towards meeting the targets of the UN SDGs as well as the SDS-SEA. Ms. Ebarvia reiterated that the preparation of draft SOC reports is a crucial first step which will continue up to 2018, with a target of finalizing all reports for presentation and submission at the East Asian Seas (EAS) Congress 2018 and the 6th Ministerial Forum to be held in Iloilo City, Philippines in November 2018.

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 on, and people rely on for food, income, livelihood, recreation, shoreline protection, etc.

Although covering only 3% of the world's ocean surface, the East Asian Seas (EAS) region is a center of marine biodiversity and home to one-third of the world's mangroves, coral reefs and seagrass beds, producing 80% of global aquaculture and 40% of world's capture fisheries, and attracting 26% of the world's tourists. Majority of the region's trade is carried through the sea. The ocean economy in

the region contributes to the gross domestic product (GDP) or national economy of the countries in varying degrees: 3.3% in RO Korea, 7% in the Philippines, 9.5% in China, 21% in Viet Nam, 23% in Malaysia, 28% in Indonesia, 30% in Thailand, and 87% in Timor Leste, mostly from its offshore oil and gas sector. The ocean economy as reported by eight countries in their draft SOC reports was estimated to be worth around **$1.42 trillion** in value added. Around 50 million people (in five countries) are employed in the ocean industries.





It was also recognized that the oceans and the coastal and marine ecosystems provide important goods and services, most of which are not accounted for in the GDP of countries, such as protection from storm surge, waste assimilation, carbon sequestration, cultural services, etc. For seven countries, the total estimated value of coastal and marine ecosystems is around **$ 531 billion** – a significant amount, which some say is still underestimated. The potential blue carbon value was estimated to be $111 B for mangroves, and $77-95 B for seagrass. It was pointed out that the methodologies used in the valuation of ecosystem services, and the breakdown of the value of ecosystem services should be presented in the SOC reports.

Pressures due to poverty, over-extraction of resources, conversion of habitats, destructive fishing, oil spills, discharge of untreated wastewater, dumping of waste into the oceans, etc., and the confluence of various factors are affecting the ocean environment. Economic activity in the ocean is expanding rapidly, driven primarily by population growth, changing demographics, rising income levels, developments in trade, logistics, and technology, and changes in climate and environment. However, an important constraint to the development of the ocean economy is the current deterioration of ocean health. Ocean economic sectors, such as fisheries, seafood processing, biotechnology, and tourism, rely on healthy ecosystems. Ecosystem services, such as carbon sequestration and shoreline protection, also rely on keeping the integrity of ecosystems.

The LMEs in the EAS region should be given the highest priority because of the diversity of life they support, and the potential destruction they face. The connectivity between the LMEs also needs to be emphasized. The LMEs have high risk levels, especially in terms of plastic waste (microplastics), nutrients, and loss of coral reefs. The major economic activities, which will be most affected are fisheries and tourism – the main source of income and livelihood in coastal communities.

It is therefore critical to improve the statistical and methodological base at national and regional levels for measuring the economic-environmental linkages, scale and performance of ocean-based and ocean-related economic activities, ecosystem services, and their contribution to the overall economy and social welfare. The information can be used to craft necessary policies, and regulatory and market-based instruments, and enhance development plans and environmental management.

Looking forward, the ocean economy provides great potential for boosting growth of environment- and climate-friendly investments, innovations, and science and technology-intensive industries. Some examples of emerging sectors in the ocean economy, initiatives being taken by the region in transitioning

towards blue economy development as well as policies and governance mechanisms supporting such national and regional efforts are shown in Table 6. Enabling conditions have be strengthened to scale up and replicate the blue economy initiatives.

Table 6. Oceans and blue economy: What's happening?

Ocean economic activities	Emerging industries	Transition to Blue Economy	
		Blue economy initiatives	Policies and governance
1. Fisheries and aquaculture	• Coastal aquaculture at industrial scale • Seaweed farming at industrial scale	• Climate smart aquaculture (Viet Nam) • Marine ranch (China, RO Korea, YSLME) • Sustainable tuna fisheries (WCPFC, Philippines, Viet Nam, Indonesia)	• International agreements: UNCLOS; UN Fish Stocks Agreement; FAO Port State Measures Agreement (on IUU Fishing); Ramsar Convention on Wetlands • Regional and National Plan of Action on IUU Fishing • Ecosystem Approach to Fisheries Management • Monitoring: Electronic catch documentation and traceability system; Registration of fisherfolk and fishing vessels; Pollution monitoring of aquaculture farms • Conservation: Establishment of fish sanctuaries and MPAs; closed season and fishing ban of certain species; • Incentives: Certification from Marine Stewardship Council; Government-funded R&D
2. Coastal and marine tourism	• Cruise tourism; theme cruises (but negative impacts have to be addressed)	• Ecotourism (Malaysia; Philippines) • Marine parks (Malaysia) • Zero carbon resorts (Philippines) • Wastewater treatment and reuse (Bali, Indonesia) • Green Fins (Thailand; Philippines)	• Ecotourism policy and strategic action plan • MSP; Coastal use plan and zoning schemes • Beach management • Financing: environmental user fees (collected from tourists); conservation charge; hotel guests contribute to habitat conservation financing • Incentives: UNESCO World Heritage Sites; ASEAN Heritage Parks – for conservation and sustainable tourism

Ocean economic activities	Emerging industries	Transition to Blue Economy	
		Blue economy initiatives	Policies and governance
3. Ports and shipping	• Green ports	• Green ports (waste management; energy efficiency and reduced GHG emissions; etc.) • Shore reception facilities • Shore-based power supply using renewable energy • Infrastructure for ballast water management	• Adoption of international conventions (e.g., MARPOL, London, Basel, CITES, etc.) • Green ports index • World Ports Climate Initiative • Port Safety, Health and Environmental Management Systems (PSHEMS) • Joint oil spill response (Gulf of Thailand) • Incentives: Green Port Award System (APEC); fiscal incentives and tax benefits (Singapore) • Emission control areas, which require ships to use fuel with 80% less sulphur (China)
4. Offshore oil and gas			• Monitoring of water quality and sediments in the area of offshore oil rigs (Timor Leste and Australia)
5. Energy	• Marine renewable energy (ocean energy; offshore wind power; etc.)	• Ocean energy – tide, current, OTEC (Korea) • Coastal wind power, coastal solar power (China, Thailand, Philippines)	• Policies and Action Plans on marine renewable energy • Incentives: feed in tariff • Government-funded research, development and deployment • Partnership with private sector
6. Water supply	• Desalination	• Wastewater treatment and reuse	• National laws on water and wastewater management
7. Shipbuilding	• Clean ships		• Incentives and R&D: environment- and climate-friendly technologies to increase energy efficiency, reduce GHG emissions and operational cost
8. Chemicals, pharmaceuticals	• Genetics; Marine biotechnology		• Government-funded R&D: Marine biotechnology for new medicines (Philippines)
9. Marine construction	• Climate-resilient infrastructure		• Climate financing
10. Marine services	• Technology-based maritime logistics		

Ocean economic activities	Emerging industries	Transition to Blue Economy	
		Blue economy initiatives	Policies and governance
Ecosystem conservation	• Blue Carbon market	• Regional and National Strategic Action Plans for the LMEs • MPAs, MPA networks, marine parks • Co-management arrangements • Mangrove and coral reef restoration and alternative livelihood • Market-based instruments: conservation financing	
Environmental protection	• Wastewater treatment plants with facilities for reuse applications	• Singapore: tough anti-littering laws, integrated solid waste management; Singapore Packaging Agreement • Indonesia: National Action Plan on Marine Plastic Debris • Japan: marine litter research; heavily-subsidized cleanup • Philippines: National Sewerage and Septage Management Plan and Program; >PhP3 billion investment by concessionaires in Metro Manila • RO Korea: Coastal Total Pollutant Load Control System • Wastewater reuse: for potable water (Singapore); for irrigation (Viet Nam; China); sludge as soil conditioner (Philippines; China; Japan); recovered methane as fuel for buses and trains (Japan)	

11.2 Summary and salient recommendations from the Forum

- The blue economy assessment is focused on the economic perspective of the ocean economy and the natural oceanic capital while meeting the goals of healthy oceans and a more sustainable development.
- "We cannot manage what we cannot measure." It is essential to monitor the state of ocean health and contributions of oceans and ecosystems to national economy, incomes, employment, welfare, and resiliency so that we can better manage them, and ensure environmental and economic sustainability. In line with this, it is important to have clear methodologies for ocean economy accounts, and valuation of coastal and marine ecosystem services, environmental damage and climate change impacts, and the environmental monitoring systems in place.
- The population growth in cities, rise of economies in Asia, habitat and biodiversity loss, declining fish stocks, pollution, water crisis, and climate change have converged to provide the platform for creating incentives for blue economy. There is a need to transform the 'growth' paradigm, and highlight the value and contribution of natural oceanic capital to guide the policy decisions that consider trade-offs and complementarities of different ocean sectors, environment protection and resource conservation.
- Trust and collaboration among government, private sector and communities are crucial to establish a functioning system, with support from scientists, academe and international organizations. They should work beyond traditional silo-based approaches, and understand the role that each sector plays. The development of SOC reports helps to foster collaboration among these entities.
- The development of regional and national State of Oceans and Coasts reports is a significant step beyond the traditional State of Environment reports. The SOC reports are looking deeper into the value and contributions of oceans and marine ecosystems to regional and national economies, livelihood and welfare; impacts of human activities; linkage to various areas of investments; and highlighting intervention needs, policies and other governance mechanisms to respond to changing environments and climate.
- To maintain the long-term health, productivity, and resilience of oceans, traditional ocean industries will need to mitigate the impact of their activities, adopt new technologies and sustainable operating practices, and shift towards blue economy.

- Education, public awareness and capacity development are crucial to have behavior change or lasting transformational change and the governance needed in blue economy.
- Identify risks, expected losses, shared values and shared benefits clearly to make it easier to get things done, and make each one be a part of the solution. Coastal development plans should start with the vision of the people, and this should be a participative process.
- No 'one size fits all' exists. We should let policymakers and stakeholders know about the gains to be made and various solution options to choose from. There are doable options, and available models for fisheries management, integrated coastal management (ICM), technologies (ports, energy; wastewater management), tools (MSP), and financing modalities (e.g., government budget, PPP, corporate social responsibility, private sector investment, international financing).
- Private sector involvement in innovative blue economy is essential – from research to design, deployment, operation, and financing. Public and private partnership is important to move the blue economy forward. However, enabling conditions have to be put in place to ensure viability, and make PPP work.
- Use science and data to underpin laws and socioeconomic development policies and plans, and support blue economy. The SOC reports can contribute to evidence-based policy- and decision-making aimed at ensuring sustainable activities, and safeguarding our natural wealth and communities.
- Enhance direction in ocean stewardship and governance in LMEs, and multi-country response to address threats and transboundary issues, protect ecosystems and key endangered species, and promote blue economy initiatives in the LMEs.
- There are national government policies and legislations, local government laws, and various international conventions covering the various aspects of ocean governance and different ocean sectors, but, these are not brought together under an integrated system. The key steps are harmonization of international goals and national policies and laws, backed by funding, and then translated to local level legislation and operationalization. The ocean agenda can be operationalized at the local level.
- Commitments from political leaders and finance ministries to prioritize the ocean agenda are critical. Ocean management, including habitat restoration, MPAs, climate resilient infrastructure, pollution reduction, and waste management should not be seen as a cost burden and investment dead-end. Blue economy offers opportunities to create new jobs, bring in new businesses and infrastructure, increase tourism, deploy new technologies, and promote innovative and sustainable industries. Develop 'elevator-pitch' messages to convince policy- and decision-makers.
- Use the information from the SOC reports and Blue Economy Forum for countries to develop policy on blue economy in the future.
- Countries, partners, and stakeholders need to collectively work harder to create real change in outcomes. "We need to do better each year!" The SOC serves as a platform to monitor progress towards achieving the SDGs, and it is an initiative that should be continued with reports being updated on regular basis to serve as useful reference document at the regional and national levels.

11.3 Closing remarks

On behalf of PEMSEA, Ms. Ebarvia, expressed appreciation for the strong support of the DMCR, MONRE of Thailand and the TRF in the preparation and actual conduct of the Blue Economy Forum. She encouraged all the delegates to make use of the information gained from the forum in initiating or enhancing actions to contribute to the SDGs and blue economy development. The country delegates were also requested to finalize and complete their respective national SOC reports given the feedback and information from the forum. Likewise, she also encouraged the representatives from various LME entities to provide further inputs in support of the development of the regional SOC report. She invited the participants to join the next EAS Congress, which will be held in the Philippines in November 2018. In closing, she urged everyone to keep the momentum going in order to attain the common goal of sustainable oceans for all.

On behalf of the Department of Marine and Coastal Resources, Ministry of Natural Resources and Environment of Thailand, Mr. Dhana Yingcharoen, Director of DMCR, delivered the closing remarks. Mr. Dhana expressed his congratulations to all the co-organizers of the First Blue Economy Forum for the successful conduct of the Forum and for bringing together over 150 participants from various international, regional and national agencies as well as representatives from NGOs, learning institutions and the private sector. He encouraged all the delegates to continue the work initiated in line with Blue Economy, and to maintain the close collaboration that has been established as a result of the Blue Economy Forum.

Annex 1. Program

Blue Economy Forum 2017

14-15 November 2017
Miracle Grand Convention Hotel, Bangkok, Thailand

#sustainable OCEANS for all
www.pemsea.org

Even though covering only 3% of the world's oceans, the East Asian Seas (EAS) are home to 33% of the world's coral reefs, mangroves and seagrass beds. The region is a center of marine biodiversity globally as well as a center of economic growth. The region's seas serve as tourist attractions, important fishing grounds providing 80% of the world's aquaculture and 60% of capture fisheries, as conduit for 90% of world trade through shipping, and source of offshore oil and gas. The ocean economy contributes 3%-19% of the GDP of the countries in the region.

The EAS region, however, faces an urgent need to clean up its coasts and waterways, conserve its ecosystems and biodiversity, while addressing the challenges of poverty alleviation, climate change, and food, water and energy security. Blue economy advocates innovative governance and an alternative economic growth strategy, in line with the Sustainable Development Goals (SDGs). Despite being a most pressing issue, sustainable coasts and oceans are among the least discussed.

On 14-15 November 2017, the Blue Economy Forum will bring together in Bangkok experts from ministries, industry, academia and international organizations. They will share the state of ocean health and progress in valuing the growing ocean economy, and the crucial marine ecosystems services on which our societies rely on. They will highlight the blue economy initiatives, innovations, policies and mechanisms that will help make *#sustainableoceansforall* happen.

PROVISIONAL PROGRAMME

14 NOVEMBER

**Presenters and chairs to be confirmed*

8:00 – 9:00	Registration	
Opening session		
9:00 – 9:10	**Welcome remarks** **Dr. Wijarn Simachaya**, Permanent Secretary, Ministry of Natural Resources and Environment, Thailand	
9:10 – 9:30	**Opening messages** • **Mr. Stephen Adrian Ross**, Executive Director, PEMSEA • **Prof. Dr. Suthipun Jitpimolmard**, Director, Thailand Research Fund	
9:30 – 9:45	**Keynote address** **Mr. Pongpanu Svetarandra**, Permanent Secretary of Ministry of Tourism and Sports, Thailand	
9:45 – 9:50	**Group photo**	
9:50 – 10:10	**Coffee/tea break**	**Press conference**
10:10 – 12:00	**Session 1: State of Oceans and Coasts (SOC)** Blue Economy – Where are we now? This session will highlight the contributions of the ocean economy and coastal and marine ecosystems services, the risks and threats, and examples of blue economy initiatives. The role of SOC Reports and the key messages to policymakers will also be explored.	
	Chair: **Prof. Alistair McIlgorm**, Professor, Australian National Centre for Ocean Resources and Security, University of Wollongong, Australia **Co-chair:** **Prof. Melanie Austen**, Head of Science: Sea and Society, Plymouth Marine Laboratory, United Kingdom Introduction by the Chair **National SOC Reports** • **Cambodia** **Mr. Roath Sith**, Deputy Director General, Ministry of Environment (MOE) • **China** **Ms. Zhu Xiaotong**, and **Dr. Wang Shouqiang**, Program Director, China-PEMSEA Sustainable Coastal Management Cooperation Center • **Indonesia** **Dr. Achmad Fahrudin**, Vice Director, Center for Coastal and Marine Resource Studies, Bogor Agricultural University (Institut Pertanian Bogor) and **Mr. Dasminto**, Deputy Director for Planning on Pollution and Degradation Control, Ministry of Environment and Forestry (MOEF • **RO Korea** **Dr. Dong-oh Cho,** Korea Ocean Foundation • **Malaysia** **Ms. Cheryl Rita Kaur**, Head, Centre for Coastal and Marine Environment, Maritime Institute of Malaysia (MIMA) **Panel discussion:** What is the state of ocean economy and ocean health? Are the contributions of the ocean economy increasing? What are some workable solutions to improve ocean health? How do we ensure the sustainability and inclusiveness of the ocean economy? What is the added value of blue economy? What are the challenges in integrating blue economy in the SOC reports, and transforming the traditional state of coasts and marine environment reports?	
12:00 – 1:00	**Lunch break**	

1:00 – 3:00	**Session 2: Navigating the paradigm shift -Oceans as natural capital and good business** This session will show how innovative industries are harnessing the potential of oceans, ensuring both economic growth and the sustainability of the marine environment and resources. Contributions to energy security, food security, travel, tourism and trade will also be emphasized.
	Chair: Dr. Waraporn Hirunwatsiri, World Bank **Introduction by the Chair** **Presenters/Panelists:** • **Ecotourism and marine parks** **Dr. Sukarno Wagiman**, Director General, Department of Marine Parks, Ministry of Environment and Natural Resources, Malaysia • **Ocean energy** **Dr. Kwang Soo Lee**, Principal Research Scientist, Coastal Engineering Research Division, Korea Institute of Ocean Science & Technology (KIOST), RO Korea • **Climate-smart aquaculture** **Dr. Cao Le Quyen**, Director, Vietnam Institute of Fisheries Economics and Planning, Ministry of Agriculture and Rural Development, Viet Nam • **Sustainable tuna fisheries systems** **Mr. Noel Barut** • **Green ports** **Ms. Cheryl Rita Kaur**, Head, Centre for Coastal and Marine Environment, Maritime Institute of Malaysia (MIMA) **Other Panelist:** **Mr. Titon Mitra,** Country Director, UNDP Philippines **Panel discussion/Q&A:** What is the role of oceans in the food-water-energy nexus? What are the dynamics driving sustainability and innovations? How do we mainstream these good practices and innovative projects, and scale up the investments in these sectors? Which sectors have high potential for viability, future returns, and environmental sustainability? What are the critical factors in nurturing blue economy development in the high potential sectors? **Synthesis by the Chair**
3:00 – 3:20	**Coffee/tea break**
3:30 – 5:00	**Session 1 (Part 2): Large marine ecosystems (LMEs)** Blue economy across borders: This session will examine the state of the LMEs in the region, the shared resources, and shared responsibility to address transboundary issues and foster blue economy development. A blend of promising approaches will be presented.
	Chairs: Mr. Gordon Johnson, Regional Cluster Leader, United Nations Development Programme (UNDP) Bangkok Introduction by the Chair **Presenters/Panelists:** • **Sulu – Sulawesi Seas** **Dr. Augustus Rex Montebon**, Conservation International – Philippines • **Yellow Sea Large Marine Ecosystem** **Mr. Yinfeng Guo**, Chief Technical Advisor and Project Manager, GEF/UNDP Yellow Sea Project

	• **Arafura – Timor Seas** **Mr. Duto Nugroho**, Agency for Marine Fisheries Research and Development, Indonesia • **South China Sea and Gulf of Thailand** **Mr. Jerker Tamelander,** COBSEA Coordinator, and Head, Coral Reef Unit, UN Environment **Panel discussion:** What are the priority transboundary problems, and action plans being undertaken to meet the challenges raised by the changing environment and climate? How is the blue economy and SDGs being integrated into the planning and management of shared resources? What are some examples of practices that have influenced change, and the benefits of replication across the region? What are the supporting policies, capacity development, and incentives that will enable and facilitate replication? **Synthesis by the Chair**
3:00 – 5:00	**Session 3: Blue Economy projects in Thailand** (progress/results of projects)
	Chair: Dr. Nawarat Krairapanond, Director of Environment Fund Office, Office of Natural Resources and Environmental Policy and Planning (ONEP), Ministry of Natural Resources and Environment (MONRE) **Presenters/Panelists:** • **An estimation of the economic value of Thailand's mangrove ecosystem** **Dr. Oraphan Srisaowarak**, Associate Professor, Faculty of Economics, Sukhothai Thammathirat Open University (STOU) • **Potencial Development for Blue Economy of Coastal Provinces in Thailand** **Dr. Niramon Sutummakid**, Associate Professor, Faculty of Economics, Thammasat University (TU) • **System of Environmental-Economic Accounting for Blue Economy in Thailand** **Ms. Wacharin Meerod**, National Center for Genetic Engineering and Biotechnology (BIOTEC) • **Thailand's Blue Economic Zone** **Dr. Adis Israngkura**, by Associate Professor, Thailand Development Research Institute (TDRI)

15 NOVEMBER

8:00 – 8:30	Registration
8:30 – 10:00	**Session 4: Making it happen: Blue solutions for protecting ocean health and communities** Blue economy and the SDG 14: This session will draw attention to the initiatives in rehabilitating and conserving coastal and marine ecosystems, dealing with pollution, and addressing destructive and overfishing, in line with the targets of SDG 14. Partnerships, innovative technologies, non-traditional approaches, and key outcomes will be discussed.
	Chair: Mr. Jerker Tamelander, COBSEA Coordinator a.i., and Head, Coral Reef Unit, UN Environment and **Dr. Hugh Kirkman** Introduction by the Chair **Presenters/Panelists:** • **Marine spatial planning and marine protected areas** **Dr. Hugh Kirkman**

	• **Business, co-management and mangrove conservation** **Mr. Alex McWilliam**, Programme Manager, Knowledge and Sustainability, IUCN-Mangroves for the Future (MFF) • **Cost-effective and innovative wastewater and septage management** **Mr. Francisco Arellano**, Senior Technical Consultant and Practice Leader for Water, Office of the President, Maynilad Water Services, Inc. • **Electronic catch documentation and traceability systems to address IUU fishing** **Mr. Geronimo Silvestre**, Chief of Party, Oceans and Fisheries Partnership, United States Agency for International Development (USAID) **Panel discussion/Q&A:** What are the benefits of working with communities, and partnering with the private sector and how do we scale up these partnerships? What are the mechanisms to enable access to innovative technologies and financing? What are the barriers that need to be overcome, and the roles of government, private sector, international organizations? What are the noteworthy actions that countries have taken to meet their commitments and targets? **Synthesis by the Chair**
10:00 – 10:20	**Coffee/tea break**
10:20 – 12:00	**Session 1 (Part 3): National SOC Reports**
	Chairs: Prof. Alistair McIlgorm and Prof. Melanie Austen Introduction by the Chair **Presenters/Panelists:** • **Philippines** **Ms. Nilda Baling**, Ecosystems Management Specialist, Biodiversity Management Bureau, Department of Environment and Natural Resources (DENR), and **Mr. Romeo Recide**, Assistant Secretary/Deputy National Statistician, Philippine Statistics Authority (PSA) • **Thailand** **Dr. Padermsak Jarayabhand**, Acting President, Thailand Environment Institute • **Timor Leste** **Ms. Lince Dessy**, Dean Faculty, Oriental University of Timor Leste (UNITAL) • **Viet Nam** **Ms. Nguyen Thanh Thao**, Department of International Cooperation and Science Technology, Vietnam Administration of Seas and Islands (VASI), Ministry of Natural Resources and Environment (MONRE) **Panel discussion:** What are the ways to further develop and mainstream the ocean economic-environment accounts? How do we increase public visibility of the contributions of the ocean economy and ecosystem services, and make a difference in government and business sectors? How can the SOC reports be optimized for influencing policy and practice in ocean and coastal management, and promoting blue economy development? **Synthesis by the Chair**
12:00 – 1:00	**Lunch break**

1:00 – 3:00	**Session 5: A dialogue with policy- and decision-makers – Exploring social and environmental governance systems for blue economy** This session will delve into the national ocean policies and enabling conditions for blue economy and achievement of the SDGs. Coverage will also include advocating the overriding case for blue economy investments, and seeking governments, development partners and private sector to discuss ways on how to move forward.
	Chair: **Atty. Roberto Oliva**, Executive Director, ASEAN Center for Biodiversity **Presenters/Panelists:** • **UN Sustainable Development Goals and the Blue Economy** **Mr. Gordon Johnson**, Regional Cluster Leader, UNDP Bangkok • **Policies Supporting Blue Economy Development in the Ocean Sector** **Mr. James Mitchell**, PEMSEA • **Thailand's National Act on Ocean and Coastal Management** **Mr. Dhana Yingcharoen**, Director, Department of Marine and Coastal Resources (DMCR) • **Indonesia's Ocean Policy and Blue Economy** **Mr. Arief Yuwono**, Adviser to the Minister, Ministry of Environment and Forestry • **Japan's Basic Plan on Ocean Policy:Developments and Challenges** **Mr. Masanori Kobayashi**, Senior Researcher, Ocean Policy Research Institute of The Sasakawa Peace Foundation **Panel discussion:** What is the importance of oceans to global sustainability and poverty alleviation? How do we fully integrate the oceans into the 21st century economic model? What are the benefits of having national ocean policies? What are some examples of governance mechanisms that drive innovations and sustainability? What are the emerging opportunities for private sector to reduce its climate footprint, and enhance the contribution of oceans to sustainable development? What has been the experience of local governments in transitioning towards the blue economy? How do we build the momentum to ensure that ocean and coastal management challenges and innovative strategies are incorporated into the political and business agenda? **Synthesis by the Chair**
3:00 – 3:20	**Coffee/tea break**
Closing Session	
3:20 – 4:00	**Regional SOC Report** **Ms. Maria Corazon M. Ebarvia**, PEMSEA **Discussion:** Synthesizing the National SOC and LME reports, monitoring progress towards the SDGs and SDS-SEA, assessing blue economy development and the ocean ahead, and implications for policy, planning and management
4:00 – 4:15	**Summary and conclusion** **Mr. S. Adrian Ross**, Executive Director, PEMSEA
4:15 – 4:30	**Closing remarks** **Mr. Jatuporn Buruspat**, Director General, Department of Marine and Coastal Resources (DMCR) **Prof. Dr. Suthipun Jitpimolmard**, Director, Thailand Research Fund (TRF)

Annex 2. List of Participants

COUNTRY PARTNERS						
No.	**Country**	**Name**	**Designation**	**Agency/Institution**	**Male**	**Female**
1	Cambodia	Long Rithirak	Deputy Director General	Ministry of Environment	x	
2	Cambodia	Roath Sith	Deputy Director General	General Directorate of Environmental Knowledge and Information, Ministry of Environment	x	
3	China	Dr. Wang Shouqiang	Program Director	China-PEMSEA Center	x	
4	China	Zhu Xiaotong	Staff	China-PEMSEA Center		x
5	Indonesia	Arief Yuwono	Senior Adviser for Energy	Ministry of Environment and Forestry	x	
6	Indonesia	Dasminto	Deputy Director for Planning on Pollution and Degradation Control	Directorate for Coastal and Marine Pollution and Degradation Control, Ministry of Environment and Forestry	x	
7	Indonesia	Duto Nugroho	Fisheries Biologist	Center Institute for Fisheries Research, Agency Research and Human Resource Development, Ministry for Marine Affairs and Fisheries	x	
8	Indonesia	Dr. Achmad Fahrudin	Vice Director for Research and Collaboration	Center for Coastal and Marine Resource Studies, Bogor	x	
9	Malaysia	Dato' Dr. Sukarno Wagiman	Director General	Department of Marine Parks Malaysia, Ministry of Natural Resources and Environment	x	
10	Malaysia	Cheryl Rita Kaur	Head	Centre for Coastal and Marine Environment,		x
11	Philippines	Romeo Recide	Assistant Secretary/ Deputy National Statistician	Sectoral Statistics Office,	x	
12	Philippines	Nilda Baling	Ecosystems Management Specialist	Coastal and Marine Division, Biodiversity Management Bureau, Department of Environment and Natural Resources		x
13	RO Korea	Dong-oh Cho			x	
14	RO Korea	Dr. Kwang Soo Lee	Principal Research Scientist	Coastal Development Research Center,	x	
15	Thailand	Dhana Yingcharoen	Director	Marine and Coastal Resources Conservation, Department of Marine and Coastal Resources,	x	
16	Thailand	Dr. Wijarn Simachaya	Permanent Secretary	Ministry of Natural Resources and Environment	x	
17	Timor Leste	Lince Dessy	Dean of Faculty of Agriculture	Oriental University of Timor Leste (UNITAL)		x
18	Viet Nam	Nguyen Than Thao		Department of International Cooperation and Science - Technology (DICST)		x

No.	Country	Name	Designation	Agency/Institution	Male	Female
19	Viet Nam	Hung		Vietnam Administration of Seas and Islands	x	
20	Viet Nam	Dr. Cao Le Quyen	Director	Vietnam Institute of Fisheries Economics and Planning, Ministry of Agriculture and Rural Development		x

No.	Name	Designation	Agency/Institution	Male	Female
NON-COUNTRY PARTNERS AND INTERNATIONAL ORGANIZATIONS					
1	Atty. Roberto Oliva	Executive Director	ASEAN Center for Biodiversity	x	
2	Dr. Augustus Rex Montebon		Conservation International Philippines	x	
3	Louise Herrmann	First Secretary And Senior Program Manager Environment and Climate Change	Embassy of Sweden, Thailand		x
4	Alex McWilliam	Programme Manager, Knowledge and Sustainability	Mangroves for the Future (MFF), IUCN Asia	x	
5	Ann Moey	Private Sector Engagement focal point	IUCN Asia		x
6	Engr. Francisco Arellano	Senior Technical Consultant and Practice Leader for Water	Office of the President, Maynilad Water Services, Inc.	x	
7	Sheryl Torres-Wu	Program Director	Marine Stewardship Council (MSC) SEA & HK		x
8	Prof. Melanie Austen	Head of Science: Sea and Society	Plymouth Marine Laboratory		x
9	Jerker Tamelander	COBSEA Coordinator and Head, Coral Reef Unit	UN Environment/ Regional Office for Asia and Pacific (ROAP)	x	
10	Reynaldo F. Molina		UN Environment/ ROAP	x	
11	Titon Anindya Mitra	Country Director	United Nations Development Programme (UNDP) - Philippines	x	
12	Gordon Johnson	Regional Practice Leader Resilient and Sustainable Development (RSD Team)	Bureau for Policy and Programme Support (BPPS) United Nations Development Programme (UNDP) Thailand	x	
13	Dr. Sutharin Koonphol	Programme Specialist– IGSD	UNDP - Thailand		
14	Dr. Pawin Talerngsri	Programme Analyst– IGSD	UNDP - Thailand		
15	Niran Nirannoot	National Project Coordinator – BIOFIN IGSD	UNDP - Thailand		x

No.	Name	Designation	Agency/Institution	Male	Female
16	Yinfeng Guo	Chief Technical Advisor and Project Manager YSLME Phase II	UNDP/GEF Yellow Sea Project	x	
17	Natalie Harms		UN Economic and Social Commission for Asia and the Pacific (UNESCAP)		x
18	Dr. Alistair Mcilgorm	Professor – Marine Economics	Australian National Centre for Ocean Resources and Security (ANCORS) University of Wollongong	x	
19	Geronimo Silvestre	Chief of Party	USAID Oceans and Fisheries Partnership, USAID/Regional Development Mission for Asia	x	
20	Aurelia Micko	Deputy Office Director	USAID/Regional Development Mission for Asia		x
21	Noel Barut		Western and Central Pacific Fisheries Commission (WCPFC) Secretariat	x	
22	Dr. Waraporn Hirunwatsiri	Senior Environmental Specialist	The World Bank Bangkok, Thailand		x
23	Dr. Hugh Kirkman	Director / Private Consultant		x	
PEMSEA					
1	Stephen Adrian Ross	Executive Director	PEMSEA Resource Facility	x	
2	Kathrine Rose Gallardo	Secretariat Coordinator	PEMSEA Resource Facility		x
3	Diwata Cayaban	Programme Assistant	PEMSEA Resource Facility		x
4	Maria Corazon Ebarvia	Project Manager (Consultant)	PEMSEA Resource Facility		x
5	James Mitchell	Consultant	PEMSEA Resource Facility	x	
LOCAL PARTICIPANTS					
1	Ampai Harakunarak, Dr.	Research Director	Thailand Development Researcher Institute (TDRI) Bangkok, Thailand		x
2	Alisa Tantarattangpong		Chulalongkorn University		
3	Anek Sopon	ARRI	Chulalongkorn University		
4	Aongart Phuakradprow	Product Officer Level 6	Port Authority of Thailand, Bangkok, Thailand	x	
5	Apiriya Jornsanoh		Office of The National Digital Economy and Society Commission, Bangkok, Thailand		x
6	Attasret Jariyathumnukool		SDGs Move		
7	Boossarasiri Thana	Program Manager	Thailand Environment Institute, Nonthaburi, Thailand		x

No.	Name	Designation	Agency/Institution	Male	Female
8	Chaiway Aschaitrakul		Customs Department, Bangkok, Thailand		
9	Chanachai Lertsuchatavanich	Legal Officer	Deparment of Marine and Coastal Resources, Bangkok, Thailand		
10	Chanakarn Ketthong	Assistant Program Officer	Thailand Environment Institute, Nonthaburi, Thailand		x
11	Chankanoot Warinpawaret	Foreign Relation Officer	Department of the Marine and Coastal Resources, Bangkok, Thailand		x
12	Charinee Suwannatat	Environmentalist	Office of Natural Resources and Environmental Policy and Planning, Bangkok, Thailand		x
13	Chayun Tantivasadakarn, Dr.	Dean	Faculty of Economics, Thammasat University	x	
14	Chiraprapa Koonlachoti	Foreign Desk Editor	Thapublica.org, Bangkok, Thailand		x
15	Chitsanupong Atilukkanametee	Government Official	Deparment of Tourism Bangkok, Thailand	x	
16	Chris Pilara	Teachnical officer business research and development	LAEM CHABANG PORT/Planning Division, Port Authority of Thailand	x	
17	Chuthatip Maneepong		Thailand Environment Institute, Nonthaburi, Thailand		
18	Dhanyabhorn Sukmak	Policy and Plan Anayst (Professional Level)	Ministry of Tourism and Sports, Bangkok, Thailand		x
19	Hiripong Thepsiriamnuay		Faculty of Economics, Thammasat University, Bangkok	x	
20	Issaraya Sangcharoen	Director of Environment and Energy Division	Industrial Estate Authority of Thailand, Bangkok	x	
21	Jaruwan Chontanawat, Dr.	Associate Professor	Department of Social Sciences and Humanities, School of Liberal Arts King Mongkut's University of Technology Thonburi, Bangkok		x
22	Jinnawat Tannak	Teachnical Officer	Thailand Greenhouse Gas Management Organization	x	
23	Jonathan Shott	Program Officer	Sustainable Development Foundation (SDF), Bangkok	x	
24	Kanittha Tambunlertchai	Lecturer	Chulalongkorn University		
25	Kanjana Yasen	Researcher	Thailand Development Researcher Institute (TDRI), Bangkok , Thailand		
26	Katawut Ngualamhin		Port Authority of Thailand, Bangkok, Thailand		x
27	Kanya Suthat	Researcher	Economy and Environment Insitute of the Lower Mekong Sub-region (EEI-LMS), Nonthaburi, Thailand		x

No.	Name	Designation	Agency/Institution	Male	Female
28	Kasem Niamchay	Staff officer to Deputy Permanent Secretary For Defense	Ministry of Defense, Bangkok, Thailand	x	
29	Katesaraporn Jongwilaikasem	Policy and Plan Analyst (Professional Level)	Ministry of Tourism and Sports Bangkok, Thailand		x
30	Ketsiree Nomrawee		101 World/Knowledge Farm		
31	Khla Sincharoen	Policy Analyst	Office of National Security Council, Bangkok, Thailand	x	
32	Kitikorn Wiangkham		Thailand Environment Institute, Nonthaburi, Thailand		
33	Kititorn Sauparieh, Dr.	Senior Research Scientist	Insitute of Marine Science, Burapha University, Chonburi, Thailand	x	
34	Komsak Swangswai		Faculty of Economics, Thammasat University	x	
35	Krisada Bamrungwong	Policy Researcher	National Center for Genetic Engineering and Biotechnology, Pathum Thaini, Thailand	x	
36	Krisanadej Jaroensutasinee, Dr.	Lecturer	School of Science, Walailak University, Nakhon Si Thammarat, Thailand	x	
37	Kundhinee Aksornwong	Director	Ministry of Foreign Affairs Bangkok, Thailand		x
38	Lawan Pornsakulsakdi	VP, Environmental Management	PTTEP, Bangkok, Thailand		x
39	Mathya Raksasataya, Dr.	Environmentalist	Office of Natural Resources and Environmental Policy and Planning, Bangkok, Thailand		x
40	Methee Kaewnern		Faculty of Fisheries, Kasetsart University, Bangkok, Thailand	x	
41	Nanthiwa Kerdchuen	Environmentalist, Senior Professional Level	Planning and Evaluation Division		x
42	Narin Tontisirin		Biodiversity-Based Economy Development Office (Public Organization), Bangkok, Thailand		
43	Nartaya Srichantuk	Economist, Senior Professional Level	Ministry of Aguculture and Cooperatives, Bangkok, Thailand		x
44	Natthawadee Bantiwiwatkul	Fisheries Biologist	Ministry of Natural Resources and Environment Bangkok, Thailand		x
45	Nawarat Krairapanond, Dr.	Director of Environment Fund Office	Office of Natural Resources & Environmental Policy and Planning (ONEP), Ministry of Natural Resources and Environment (MONRE), Thailand	x	

No.	Name	Designation	Agency/Institution	Male	Female
46	Niramon Sutummakid	Lecturer	Faculty of Economics, Thammasat University		x
47	Nisakorn Wiwekwin		Saen Suk Municipality		
48	Niti Wongthepwanit	Assistant Researcher	Chulalongkorn University		
49	Nuanchan Singkran, Dr.	Lecturer	Faculty of Environment and Resource Studies, Mahidol University, Nakorn Pathom, Thailand		x
50	Nutta Phakdeeprasert	Technical Officer	Port Authority of Thailand, Bangkok, Thailand		x
51	Orapan Srisawarak, Dr.	Lecturer	School of Economics, Sukhothai Thammathirat Open University, Nonthaburi, Thailand		x
52	Pacharapa Tantragene	Lecturer	Burapha University, Chonburi		
53	Padermsak Jarayabhand, Dr.	Acting President of Thailand Environment Institute	Thailand Environment Institute, Nonthaburi, Thailand	x	
54	Panitcha Waikuna	Head of Evaluation Unit	Port Authority of Thailand, Bangkok, Thailand		x
55	Parisa Huanprapai Thonubol	Foreign Relation Officer , Professional Level	Department of Public Work and Town and Country Planning(DPT) / Office of Foreign Relations, Bangkok, Thailand		x
56	Pasapitch Manomayitthikan	Academic Environmental	Office of Natural Resources and Environmental Policy and Planing, Bangkok, Thailand		x
57	Petch Manopawitr	Deputy-head IUCN Indo-Burma	IUCN, Bangkok, Thailand	x	
58	Phanat Sakuldit	Product Officer Level 8	Port Authority of Thailand, Bangkok, Thailand	x	
59	Pinsak Suraswadi, Dr.	Deputy Director General	Department of National Park, Wildelife and Plants, Ministry of Natural Resources and Environment, Bangkok, Thailand	x	
60	Piyanuch Boonyen	Plan and Policy Analyst	Ministry of Tourism and Sports, Bangkok, Thailand		x
61	Piyapong Jangmaimoon, Dr.		Department of Social Sciences and Humanities, School of Liberal Arts King Mongkut's University of Technology Thonburi, Bangkok, Thailand	x	
62	Piyarat Chimchome	Professional Forestry Technical Officer	Department of National Parks, Wildlife and Plant Conservation, Bangkok, Thailand		x
63	Ploywawee Kirkpunkul	Secretary - General	Officee of The National Digital Economy and Society Commission, Bangkok, Thailand		x

No.	Name	Designation	Agency/Institution	Male	Female
64	Poonsri Wanthongchai	Senior Professional forestry tbcnical officer	Department of Marire and Coastal Resoures (DMCR), Bangkok,Thailand		x
65	Pornpana Pechsri	Fishery Resercher	Ministry of Natural Resources and Environment, Bangkok, Thailand		x
66	Praparsiri Barnette, Dr.	Lecturer	Faculty of Science, Burapha University, Chonburi, Thailand		x
67	Prarasri Uthaina	Policy Analyst	Office of National Security Council, Bangkok, Thailand		x
68	Prasert Sirinaphaporn	Director of The Office of National Environment Board	Office of Natural Resources and Environmental Policy and Planing, Bangkok, Thailand	x	
69	Pratchaya Reukpreedapong	Product Officer Level 6	Port Authority of Thailand, Bangkok, Thailand	x	
70	Praulai Nootmorn	Fisheries Biologist , Senior Professional Level	Department of Fisheries, Bangkok, Thailand		x
71	Prinyarat Leangcharoen	Senior Researcher	Thailand Development Researcher Institute (TDRI), Bangkok, Thailand		x
72	Rawadee Jarungrattanapong, Dr.	Lecturer	School of Economics, Sukhothai Thammathirat Open University, Nonthaburi, Thailand		x
73	Rawiwan Boonchai	Programme officer	IUCN, Bangkok, Thailand		x
74	Ricardo Tomas Marchant	Researcher	Economy and Environment Insitute of the Lower Mekong Sub-region (EEI-LMS), Nonthaburi, Thailand	x	
75	Risara Thaiwat	Environmental Devision	Office of the council of state, Bangkok,Thailand		
76	Rungrat Kwanoum	Foreign Relation Officer , Senior Professional Level	Department of Public Work and Town and Country Planning(DPT) / Office of Foreign Relations, Bangkok, Thailand		x
77	Rungsiwut Keawsang	Assistant Researcher	Chulalongkorn University		
78	Rungrawee Yingyuad	Senior Professional Scientist	Department of Alternative Development and Efficiency, Bangkok, Thailand		x
79	Saowalak Winyoonantakul	Foreign Relation Officer	Department of the Marine and Coastal Resources, Bangkok, Thailand		x
80	Sarawut Siriwong		Burapha University, Chanthaburi	x	
81	Sarocha Chotwattananon		Faculty of Economics, Thammasat University, Bangkok, Thailand		x
82	Sayathorn Chatsrichularat	Product Officer Level 5	Port Authority of Thailand, Bangkok, Thailand	x	

No.	Name	Designation	Agency/Institution	Male	Female
83	Saysudchai Chunchaowarit	Senior Professional Forstry Technical Officer	Department of National Parks, Wildlife and Plant Conservation, Bangkok, Thailand		x
84	Sinthu Kaewsin		The Thailand Research Fund		x
85	Siriporn Sriaram	Mangroves for the future Thailand coordinator	IUCN, Bangkok, Thailand		x
86	Somchai Limthong		Port Authority of Thailand, Bangkok, Thailand		
87	Somchai Dararat, Dr.	Director, Centre	Thailand Institute of Scientific and Teachnological Research (TISTR), Phathum thani, Thailand	x	
88	Somsak Phayaksa	Assistant Department Chief	Port Authority of Thailand, Bangkok, Thailand	x	
89	Soparatana Jarusombat, Dr.	Lecturer	Faculty of Political Science, Thammasat University		x
90	Soranuth Sirisuay	Lecturer	Faculty of Fisheries, Kasetsart University, Bangkok, Thailand	x	
91	Sorasit Juntong	Program Office Assistant	Thailand Environment Institute, Nonthaburi, Thailand	x	
92	Sorranat Benjanuwat	Assistant Department Chief	Port Authority of Thailand, Bangkok, Thailand	x	
93	Sorravee Vongpanyaporn	Foreign Relation Officer , Practitioner Level	Department of Public Work and Town and Country Planning(DPT) / Office of Foreign Relations, Bangkok, Thailand		x
94	Sorrawit Rinkaew	Product Officer Level 8	Port Authority of Thailand, Bangkok, Thailand	x	
95	Sorawuth Prompunkum	Economist	Fiscal Policy Office		
96	Sornawee Sinpichetkorn	Research Assistant	Chulalongkorn University		
97	Srisuwan Kuankachorn		Sustainable Development Foundation (SDF), Bangkok, Thailand		
98	Suchai Worachananant	Lecturer	Faculty of Fisheries, Kasetsart University, Bangkok, Thailand	x	
99	Suhatai Praisankul	Senior Marine Biologist	Department of Marire and Coastal Resoures (DMCR), Bangkok,Thailand		x
100	Sukanjanawadee Maneeratana	Inspector	Ministry of Natural Resources and Environment, Bangkok, Thailand		x
101	Sul Ukapatsakul	Chief of Business Research and Development	LAEM CHABANG PORT/Planning Division, Port Authority of Thailand	x	
102	Sumaitt Putchakarn, Dr.	Senior Research Scientist	Insitute of Marine Science, Burapha University, Chonburi, Thailand	x	

No.	Name	Designation	Agency/Institution	Male	Female
103	Sumana Kajonwattanakul	Director of office of the Secretariat to the National Marine and Coastal Resource Poltiсy Planting Board	Department of Marire and Coastal Resoures (DMCR), Bangkok,Thailand		x
104	Sunee Piyapanpong	Director General	Pollution Control Department, Bangkok, Thailand		x
105	Supamongkol Nilkamhang	Policy Analyst	Office of National Security Council, Bangkok, Thailand	x	
106	Supason Wanichwecharungruang	Director of The Royal Golden Jubilee Ph.D. Program	The Royal Golden Jubilee (RGJ) Ph.D. Programme, Bangkok, Thailand		x
107	Surasak Chonchirdsin	Manager, Operation Environment	PTTEP, Bangkok, Thailand	x	
108	Sureerat Chanama		The Thailand Research Fund		x
109	Suvaluck Satumanatpan, Dr.	Lecturer	Faculty of Environment and Resource Studies, Mahidol University, Nakorn Pathom, Thailand		x
110	Tanachai Saengchan		The Thailand Research Fund		x
111	Tanawan Pongpanich	Official	Thailand Greenhouse Gas Management Organization		x
112	Tanuspong Pokaranioh, Dr.	Lecturer	Faculty of Fisheries, Kasetsart University, Bangkok, Thailand	x	
113	Thammasak Yeemin, Dr.	Assistant Professor	Faculty of Science, Ramkhamhaeng University, Bangkok, Thailand	x	
114	Thanamon Rojanasuwan	Project Coordinator	Thailand Greenhouse Gas Management Organization		x
115	Thananut Pijadee	Section Chief, Tractor	Port Authority of Thailand, Bangkok, Thailand	x	
116	Thanawat Jarupongsakul	Lecturer	Faculty of Sciences, Chulalongkorn University, Bangkok, Thailand	x	
117	Thapana Boonlar, Dr.	Chairman	Asian Institute of Logistics Foundation (AIL), Bangkok, Thailand	x	
118	Thippawan Keawmesri	Senior Researcher	Thailand Development Researcher Institute (TDRI), Bangkok, Thailand		x
119	Tipwan Sae-ma	Fishery Biologist , Professional Level	Department of the Marine and Coastal Resources, Bangkok, Thailand		x
120	Udomsak Seenprachawong, Dr.	Lecturer	School of Development Economics, NIDA, Bangkok, Thailand	x	
121	U-Thai Ave-areechit	Deputy Director General and Deputy CEO	Biodiversity - Based Economy Development Office (Public Organization), Bangkok , Thailand	x	

No.	Name	Designation	Agency/Institution	Male	Female
122	Vachirawon Nontakanok	Academic Environmental	Office of Natural Resources and Environmental Policy and Planing, Bangkok, Thailand		x
123	Varunthat Dulyapruk		Faculty of Fisheries, Kasetsart University, Bangkok, Thailand	x	
124	Veerachai Gosasang, Dr.	Director of Mechanical Honding Equipment	Port Authority of Thailand, Bangkok, Thailand	x	
125	Vonnaporn Devahastin	Secretary - General	Officee of The National Digital Economy and Society Commission, Bangkok, Thailand		x
126	Wanat Bathitasopon	Economist	Fiscal Policy Office		
127	Wasawan Bhowati	Plan and Policy Analysts	Ministry of Tourism and Sports, Bangkok, Thailand		x
128	Wasuporn Umponnavarat	Research Assistant	Chulalongkorn University		
129	Watcharin Meerod	Policy Researcher	The National Center for Genetic Engineering and Biotechnology (BIOTEC), Pathum Thani, Thailand		x
130	Wicharn Sirichai-Ekawat	Honorary Consul	The Honorary Consulate of The Republic of Mozambique, Bangkok, Thailand	x	
131	Wichean Keawkong	Environmental Engineer	PTTEP Public Company Limited, Bangkok, Thailand		
132	Wilailak Suraphruk	Senior Program Officer	Thailand Environment Institute, Nonthaburi , Thailand		x
133	Wimolporn Wainipee, Dr.	Environmentalist	Pollution Control Department Bangkok , Thailand	x	
134	Wipada Lalitpatharakul	Research Assistant	Chulalongkorn University		
135	Wirat Sanitmatcharo	Fishery Biologist , Senior Professional Level	Fisheries, Bangkok, Thailand	x	
136	Wongkhae Vuthipongse	Analyst	PTT Public Company Limited, Bangkok, Thailand		x
137	Yuwanan Santitaweeroek	Senior Policy Researcher	National Center for Genetic Engineering and Biotechnology, Pathum Thaini, Thailand		x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Blue Economy Forum 2017
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