

STATE OF OCEANS AND COASTS

Monitoring the SDGs, Promoting Blue Economy

The East Asian Seas (EAS) region is known as the center of marine biodiversity globally, being home to 31% of the world's mangroves, 33% of seagrass beds and a third of the world's coral reefs. Countries of the EAS region account for 80% of global aquaculture, and around 60% of the world's capture fisheries. Moreover, the region's seas serve as an important conduit for 90% of world trade through shipping. The EAS region is also a center of economic growth, with the second and third largest economies (China and Japan, respectively) located in this 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, food, water and energy security, and climate change. Yet, this serious state of affairs offers an opportunity for communities, NGOs, businesses and professionals to get involved and collaborate with Governments, and development agencies.

SETTING THE SCENE

The Changwon Declaration signed during the 4th EAS Congress 2012 in Changwon, RO Korea paved the way for adopting the **blue economy** paradigm.

Blue economy advocates an alternative economic growth strategy in the coasts and oceans with low environmental impacts, in line with the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs). This has emerged as a feasible development path where economic growth is driven by consumption and investments that promote inclusiveness, prevent the loss of biodiversity and ecosystem services, reduce pollution, enhance resource efficiency, and reduce carbon and water footprints.

In November 2015, Ministers and Senior Government Officials from 11 PEMSEA Partner Countries signed the Da Nang Compact, thereby adopting the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA) 2015 and four post-2015 Strategic Targets.

Target 2 of the four strategic time-bound targets refers to the development of **a regional State of Oceans and Coasts (SOC) reporting system** by 2018 as a mechanism for monitoring and reporting progress for SDS-SEA implementation.

Knowing the structure of the ocean economy and ecosystem services can be used to see the benefits and how environmental degradation, biodiversity loss, and climate change can affect development and human welfare. Initial estimates already show that the SOC provides a comprehensive approach to evaluate the contribution of oceans and coasts, impacts of human activity on the ocean, as well as monitor progress towards the SDGs and other international agreements. Thus, the SOC is an important tool to advance good governance, scientific support and partnerships for blue economy, promote the development of synergies among the various sectors, and support evidence-based policy- and decision-making aimed at ensuring sustainable oceans and coasts for all.

OCEANS AS NATURAL CAPITAL

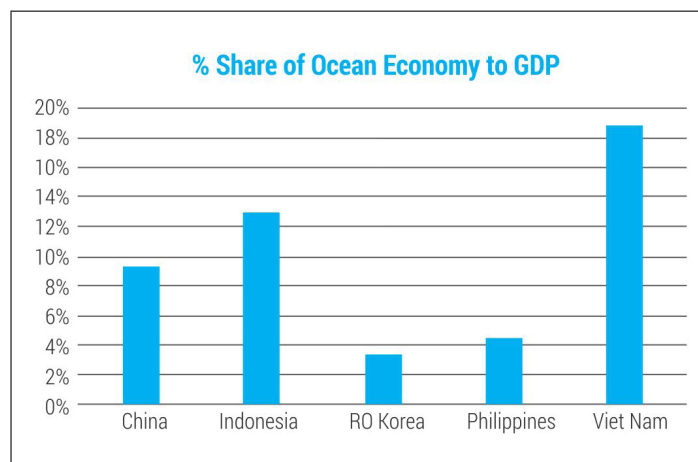
The ocean economy

The ocean economy encompasses all economic activities with a direct dependence on coastal and ocean resources. The contribution of the ocean economy to the GDP of countries varies, but can be substantial: 3.3% in RO Korea, 4.5% in the Philippines, 9.4% in China, 13% in Indonesia, and 19% in Viet Nam (PEMSEA 2015). The ocean economy includes:

- *ocean-based* activities (fisheries, marine tourism, shipping, oil and gas, ocean energy, etc.); and
- *ocean-related* activities: (a) those that use products from the ocean (seafood processing, marine biotechnology, salt); (b) produce products and services for the ocean-based activities (ports, ship building, communication, maritime insurance); (c) marine education and research; and (d) government agencies with direct maritime responsibilities (navy, coast guard, marine environmental protection).

Coastal and ocean ecosystem services

There are ocean processes that influence climate and biodiversity, and affect sustainability of ocean activities. There are also regulating, supporting and cultural services provided by healthy coastal and ocean ecosystems that are not usually quantified. The initial assessment of ecosystem services in selected countries shows that the values are significant,



but could still be underestimated (Table 1). For example, carbon sequestration and shoreline protection have not been included in the estimation of these services in Indonesia. This could be considerable given the large areas of mangroves, seagrass and coral reefs in this country. It is therefore essential to emphasize the importance of natural capital accounting, and highlight the value of ecosystem services in discussions and decisions on growth, development and conservation strategies.

Table 1. Values of ecosystem services

Country	Value of ecosystem services (US\$)
Indonesia	244.8 M
Malaysia	635 M
Philippines	545.5 M
RO Korea	40.5 B – 42.6 B
Thailand	27.67 B

Ocean health

The following initial assessment of environmental damage points out the critical state of ocean health.

- The coastal wetland area in China has decreased by 57% in the past 60 years. Mangrove forest and coral reef decreased by 73% and 80%, respectively (PEMSEA 2015).
- The environmental costs from unsustainable fishing, coastal development, pollution, and climate change impacts in the Philippines amount to US\$129.5 million (World Bank, 2009).
- In Thailand, the total cost of coastal erosion, oil spills, and damage caused by tsunami and mangrove destruction amounted to US\$2.62 billion (PEMSEA 2015).

CONSERVING HABITATS AND BIODIVERSITY

Blue Carbon Program. Under Indonesia's *National Priority for Blue Carbon Program*, several actions are being undertaken, such as assessment of fisheries and blue carbon value; community mangrove and seagrass restoration; capacity building in sustainable fisheries and alternative livelihoods; expanding the science program; and integrating Blue Carbon into sustainable use, conservation and management of coastal and ocean resources; etc. (PEMSEA 2015).

Marine protected areas (MPAs). Economic and environmental benefits of MPAs include reconstituting ecosystem services, stabilization of fish population, more sustainable catch levels, tourism, reducing risks from natural hazards, and providing carbon sinks. Globally, more than 10% of coastal and ocean areas within national jurisdiction are covered by MPAs (Table 2). However, only 4% of the global ocean, and one third of the 232 marine ecoregions, have at least 10% of their area protected (UNEP-WCMC and IUCN 2016). Although countries in the EAS region have made major efforts, more concerted regional and global action on targeting of key biodiversity areas to come under protection, and assessments of

how MPAs are effectively and equitably managed and connected is still needed to meet the overall target and elements under Aichi Biodiversity Target 11 and SDG 14.

OCEAN AS GOOD BUSINESS

The EAS region recognizes that its oceans and coasts are drivers for the economy, with greater potential for growth, innovation, and job creation—from small-scale fisheries to high-end ocean energy and marine biotechnology. Various examples of innovative and sustainable activities are transpiring in the EAS region.

Ecotourism. The tourism sector plays a major role in promoting economic growth and infrastructure development, alleviating poverty, creating opportunities for small- and medium-scale industries, and supporting conservation. Ecotourism is becoming popular among environmentally-conscious tourists. In Thailand, Marriott signed a three-year Memorandum of Understanding with IUCN. Customers at its two hotels are encouraged to donate \$1 to IUCN towards mangrove restoration for each overnight stay (IUCN-MFF 2016).

Table 2. Ocean indicators

	Cambodia	China	Indonesia	Japan	RO Korea	Malaysia	Philippines	Singapore	Thailand	Timor Leste	Viet Nam	TOTAL (EAS)	World
Total fisheries ('000 m.t.)	745	76,149	20,884	4,773	3,305	1,989	4,692	6.4	2,904	4.8	6,331	117,010	195,784
Capture fisheries growth (% annual average, 2000–2014)	5.8	1.1	3.3	-2.3	-0.4	0.9	1.5	-9	-3.7	-0.9	4.3	-	0.0
Aquaculture growth (% annual average, 2000–2014)	16.3	5.3	21	-1.7	6.3	8.4	5.5	-0.2	1.7		14.5	-	6.5
Marine protected areas (% of territorial waters)	0.5	2.3	5.8	5.1	4.3	2.3	2.5	1.5	5.2	3.8	1.8	-	12.2
Coral reef area (sq. km.)	<50	1,510	51,020	2,900	--	3,600	25,060	<100	2,130		1,270	87,640	284,300
Mangrove area (sq. km.)	728	208	31,894	7.4	--	7,097	2,565	4.6	2,484	18	1,056	46,062	150,398

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



Eco-ports. The shipping industry in the region has expanded beyond just maritime trade to include auxiliary service-based activities, e.g., logistics, insurance, maritime law, bunkering, crewing, and information technology. Safety and emissions regulations and higher energy prices are also changing the shipping industry. Ports in Malaysia have started to apply sustainable practices, such as establishing the green port index; monitoring air and water pollution levels; using waste and heat recovery systems and green building features in ports; proper disposal of waste from ships and ports; recycling; and restoring sensitive areas and habitats.

Climate-smart aquaculture. Advanced science and technologies are crucial to reach targets for blue growth in fisheries and aquaculture and cope with climate change in the EAS region. In Thanh Hoa province in Viet Nam, an integrated system of *tilapia* and brackish water shrimp ponds was introduced. This resulted in cleaner shrimp ponds, reduction of feed conversion ratio for farmed tilapia, and reduction of production costs. In Ben Tre, the hard clam aquaculture, which increased both mangrove areas and local incomes, has received certification from the Marine Stewardship Council.

Ocean energy. The impact on climate change from fossil fuel energy has put increasing pressure on the energy sector to invest in renewable technologies, such as ocean energy and coastal and offshore wind power. RO Korea has operated a national R&D program on ocean energy, which resulted in the construction of tidal power, tidal current energy, wave energy, and ocean thermal energy conversion power plants.

Innovative wastewater treatment and recycling. Wastewater management is inextricably linked to overall coastal and ocean management objectives. Technologies have evolved, enabling wastewater not only to be treated, but also reused extensively for irrigation, and other non-potable

uses, thereby contributing to lowering freshwater usage. Usage of treated sludge as soil conditioners has reduced the use of chemical fertilizers. Biogas and methane recovery is used for electricity generation, and as alternative fuel to power buses, trains and garbage trucks in Kobe, Japan (ADB-JSC 2015).

Desalination, wastewater treatment, and water security.

Through strategic planning and investment in research and innovative technology, Singapore has built a diversified water supply system comprised of: (a) local catchment water; (b) imported water (from Malaysia); (c) highly-treated and purified reclaimed water (called NEWater); and (d) desalinated water.

Marine biotechnology and new medicines. In China, marine natural products (MNPs) have been traditionally used in drug and food development. The Philippine PharmaSeas Drug Discovery Program is tapping the rich marine biodiversity in the Philippines. It is focused on bioactives from marine organisms, including pain killers using marine snails and anti-infectives from sponges.

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