



# POST-2020

## FUTURES REPORT AND STRATEGY



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# Introduction

The East Asian Seas cover approximately 7 million km<sup>2</sup> of sea area and 235,000 km of coastline. It is recognized 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 in the East Asian region account for 80% of global aquaculture, and around 60% of the world's capture fisheries. **The region's seas serve as an important conduit for world trade, connecting 9 of the world's 10 busiest ports.** Moreover, the region is a center of economic growth, home to the 2nd and 3rd largest economies of the world (China and Japan, respectively), and the combined economies of ASEAN, which represent the world's 5<sup>th</sup> largest economy and the 3rd largest global market with more than 630 million people.

Partnerships in Environmental Management for the Seas of East Asia (**PEMSEA**) is a regional organization mandated to promote collaboration towards healthy oceans, people and economies in the East Asian Seas (**EAS**). Eleven country partners and 21 non-country partners have been working together to implement a shared regional strategy called the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA), which outlines ambitious targets and approaches towards ensuring sustainable and prosperous oceans and coasts in the region.

The adoption of the United Nations Sustainable Development Goals (**UN-SDGs**) in 2015 called on the public and private sectors and civil society to focus their efforts and partnership towards addressing the interrelated challenges of sustainable development, with the view of scaling-up solutions and managing resources more effectively. The same is taking place in East Asia as policies, programs, and projects are being aligned in support of the SDGs across the domains of government, business and finance, civil society, development funding and philanthropy.

As PEMSEA celebrates 25 years of helping strengthen regional governance and cooperation, building local capacity and implementing integrated coastal management (**ICM**), it now looks to the future. Stepping into a post-2020 world, this report seeks to identify the relevant global, regional and national trends that will catalyze change and influence decision-making for the EAS. In this report, key facts and figures on persistent and emerging trends and priority developments present both familiar and new perspectives on the challenges and opportunities that are likely to matter post-2020. This report is part of the process of stocktaking with a view to developing an action plan (roadmap) that would cover both mid- and long-term programs of work. The report's aim is to help inform PEMSEA's effective and collaborative engagement towards more sustainable and prosperous oceans and coasts.

# Acronyms and Abbreviations

ADB	Asian Development Bank	IMO	International Maritime Organization
AI	Artificial Intelligence	IoT	Internet of Things
ASCC	ASEAN Socio-Cultural Community	IPCC	Intergovernmental Panel on Climate Change
ASEAN	Association of Southeast Asian Nations	IUU	Illegal, Unreported, and Unregulated
AVPN	Asian Venture Philanthropy Network	IYAFA	International Year of Artisanal Fisheries and Aquaculture
BAU	Business as Usual	JICA	Japan International Cooperation Agency
BBNJ	Marine Biodiversity in Areas Beyond National Jurisdiction	KIOST	Korea Institute for Ocean Science and Technology
BINGOs	Bringing Innovation to Ongoing Water Management	LGU	Local Government Unit
BRI	Belt Road Initiative	LME	Large Marine Ecosystem
BSI	British Standards Institution	MT	Metric Tons
CBD	Convention on Biological Diversity	PEMSEA	Partnerships in Environmental Management for the Seas of East Asia
CDT	Catch Documentation and Traceability	PRF	PEMSEA Resource Facility
CE	Circular Economy	R&D	Research and Development
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora	SDG	Sustainable Development Goal
CMS	Conservation of Migratory Species of Wild Animals	SDNT	Single Draft South China Sea Code of Conduct Negotiating Text
COC	Code of Conduct	SDS-SEA	Sustainable Development Strategy for the Seas of East Asia
DFAT	Department of Foreign Affairs and Trade	SLR	Sea Level Rise
DLM	Deep Learning Model	SSF	Small-Scale Fisheries
EAS	East Asia Seas	TNC	The Nature Conservancy
EBM	Ecosystem-Based Management	UN	United Nations
EU	European Union	UNCLOS	United Nations Convention on the Law of the Sea
FAO	Food and Agriculture Organization	UNDP	United Nations Development Programme
GCF	Green Climate Fund	UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
GEF	Global Environment Facility	UNFCCC	United Nations Framework Convention on Climate Change
GEF	Global Environment Facility	UN-SDGs	United Nations Sustainable Development Goals
GHG	Greenhouse Gas	USAID	United States Agency for International Development
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit	WCPFC	Western and Central Pacific Fisheries Commission
HAB	Harmful Algal Bloom	WWF	World Wide Fund for Nature
IAPH	International Association of Ports and Harbors		
ICM	Integrated Coastal Management		
IFC	International Finance Corporation		
IHG	Intercontinental Hotels Group		



# I. Executive Summary

The East Asian Seas (EAS) play a pivotal role in the social and economic lives of the region's population. For the past 25 years, PEMSEA has been providing solutions that foster and sustain healthy and resilient oceans, coasts communities and economies across the region. However, there remains work to be done with major issues surrounding climate change coupled with increasing environmental and economic pressures on the EAS—including fisheries health, marine pollution, and the effects of growing ocean-based economic activities—that must be addressed. At the same time, growing opportunities for cooperation between governments, private sector and other stakeholders; increasing interest in ocean governance, private sector engagement and sustainable finance; and emerging technological advancements bring hope in facing these challenges collectively.

This Post-2020 Futures Report and Strategy sets the stage and the course for PEMSEA to respond actively and effectively to the challenges and opportunities that the EAS will face.

## Trends Analysis

Forecasts point to four major trends that are set to present the region with its biggest challenges post-2020:

1. **Climate change** is projected to magnify leading to more damaging extreme weather events, sea level rise, ocean warming and ocean acidification and their cascading effects on communities and ecosystems.
2. **Overexploitation of marine resources** is expected to continue due to increasing demand for seafood and marine products and the prevalence of unsustainable fishing practices.
3. **Marine pollution**, including nutrient loading and plastic waste, is forecasted to become an increasingly serious threat to the region.
4. **Ocean-based trade and industry** is predicted to accelerate and cause more pressure on marine habitats and coastal communities.

## Areas for Cooperation

Despite the challenging prognosis on the future of the EAS, hope emerges through the availability of solutions and a common desire for cooperation across the region:

1. **Coastal and ocean governance** is improving through the presence of various government and intergovernmental structures that are deepening engagement among stakeholders from the international, national, and community levels towards more efficiently addressing transboundary and local issues.
2. **Technology**, in particular new and emerging technologies, present opportunities for more efficient collection, monitoring, and management of coastal and marine conditions, as well as facilitating novel solutions for addressing coastal and marine issues through new platforms in fintech\*, and biotechnology applications, among others.
3. **Private sector engagement and finance** provide much needed support to the SDGs for the region's oceans and coasts, setting the stage for new approaches towards a blue economy that ensures prosperous and healthy oceans for East Asia.

## Post-2020 Strategy

With the Trends Analysis and Areas for Cooperation as its foundation, PEMSEA assesses its future and discusses how to sustain its efforts towards further institutionalizing integrated coastal management while expanding its reach and deepening its collaboration with existing and new partners. PEMSEA's Post-2020 Strategy outlines three main strategic objectives to help navigate the organization through a post-2020 world:

1. **Establish strong expertise and brand awareness** centered on future proofing the Seas of East Asia.
2. **Enhance alignment and partnerships** with PEMSEA's network of stakeholders.
3. **Secure a diverse and sustainable mix of funding streams** to implement the SDS-SEA and support PEMSEA Resource Facility in continuing its self-sustainability post-2020.

To operationalize this strategy, PEMSEA will focus on a number of key thrusts and present a prospective list of priority activities for the next five years. With this Post-2020 Futures Report and Strategy, PEMSEA aims to bring together its partners, networks and other stakeholders of the oceans, coasts, and communities of East Asia to provide effective, efficient, and long-lasting solutions for sustainable seas.

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\* Financial Technology, nowadays better known under the term 'fintech', describes a business that aims at providing financial services by making use of software and modern technology.

## II. Methodology

This report relied primarily on three approaches to develop its trends analysis.

**Desktop research** was conducted to gather relevant research and analysis related to the future of East Asia's oceans and coasts as documented in peer-reviewed publications, news reports, and materials provided across multilateral and bilateral organizations, government agencies and scientific institutions. The literature review provides for the report's various projections as well as the multiple examples of policies, initiatives, and collaborative areas that are likely to be most relevant for 2020 and beyond. Relevant PEMSEA documents such as the Shared Regional Strategy, the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA) and its Implementation Plan for 2018–2020 and the Third Party Assessment Report helped inform the recommendations of the report.

A series of **surveys** was designed and shared with PEMSEA country and non-country partners to collect qualitative insight and a sense of stakeholder priorities on some key trends and developments around East Asia's oceans and coasts. Furthermore, these surveys helped shape the way this report frames its analysis around forecasted trends and areas for cooperation, as various respondents indicated the need to understand first “what is coming” so as to properly arrive at “what we can do about it”.

Finally, **interviews** were conducted with a subset of PEMSEA's country partners, as well as with thought leaders and experts from the region and analogous organizations with the objective of validating the report's findings, fine tuning the analysis of forecasted trends and pathways for collaboration, and soliciting reflections on how the identified challenges and opportunities can be constructively addressed by policymakers within the region through more effective collaboration.

Although the scope of this report includes analysis that touches on global phenomena and future themes relevant across various stakeholder groups, the analysis is limited to projections and developments that are grounded in the geography of East Asia only, with particular emphasis on trends that are likely to affect and influence change across populations within the region that are dependent on oceans and coasts.

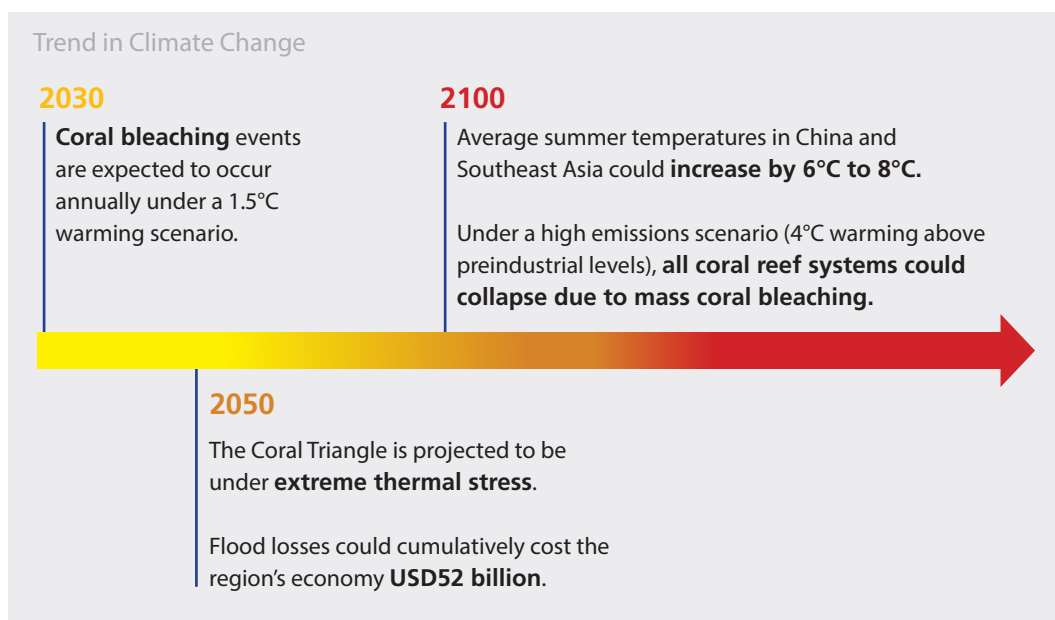
In line with this methodology and in response to the suggestions of respondents, the succeeding trends analysis is divided into two major themes spanning seven trends. First, the report presents the **Forecasted Trends for the Seas of East Asia for 2020 and Beyond**, which summarizes how the major issue areas of **climate change**, **overexploitation of marine resources**, **marine pollution**, and **ocean-based industry and trade** are evolving within the context of East Asia and how they are projected to directly affect the region's oceans and coasts and relevant stakeholders through 2020 and beyond. Then, analysis shifts towards identifying **Areas of Opportunity for Supporting the Future Health of East Asia's Oceans and Coasts**, discussing how various platforms as well as ongoing and planned initiatives in **coastal and ocean governance**, **technology**, and **private sector engagement and finance** are paving the way for more effective and responsive collaboration within the region to “turn the tide” of these forecasted challenges and transform them into opportunities.



# III. Forecasted Trends for the Seas of East Asia for 2020 and Beyond

East Asian countries are key players in global phenomena that are projected to transform the natural and built environments of the region as well as affect populations dependent on its oceans and coasts. Evidence and key projections from recent studies point to how climate change, fisheries health, marine pollution and ocean-based industry and trade will converge to present the region's biggest challenges.

## 1. Climate Change



### Climate change seriously impacts the East Asian Seas.

Global conditions with respect to extreme weather events, sea level rise (SLR), ocean warming, and ocean acidification are expected to reach crisis levels by 2050—with East Asia potentially facing huge levels of environmental and economic disruption, given its vulnerable coastal regions. The 2018 IPCC Special Report on Global Warming of 1.5°C provides examples of the significant impact only a small further increase in temperature will have on the oceans and on coastal populations.<sup>1</sup> The 2019 Special Report on the Ocean and Cryosphere in a Changing Climate details the environmental changes the oceans and coasts have already undergone.<sup>2</sup>

Average summer temperatures in East Asia are projected to increase by 6°C to 8°C under a business as usual (**BAU**) scenario.<sup>3</sup> This has major implications for agriculture and health as these countries will have to contend with the impact of heat waves on food production, as well as on population mortality and morbidity.

Sixty-five percent of the global population living in areas highly vulnerable to SLR are located in Asian port cities, which will be prone to flood and storm surge events.<sup>4</sup> Specifically, 19 of the 25 cities that are most exposed to a 1-meter SLR are all located in the Asia-Pacific region, seven of which are in the Philippines alone.<sup>5</sup>

The costs of flood losses to East Asia's economy are projected to increase eightfold, from USD6 billion in 2005 to USD52 billion by 2050. Cities in East Asia with the largest expected increase of annual losses include Guangzhou (China), Shenzhen (China), Tianjin (China), Ho Chi Minh City (Vietnam), Jakarta (Indonesia), Zhanjiang (China), Bangkok (Thailand), Xiamen (China), and Nagoya (Japan).

In the Mekong River Delta in Vietnam, SLR will worsen flooding, as will estuarine siltation caused by dam construction,<sup>6</sup> which threaten fish populations, alters natural river hydrology and endangers the river's ecosystem. In Indonesia, simple ocean data assimilation shows that the rate of SLR already increased from 1.6mm/year in 1960 to 7mm/year from 1993 to 2014, with a projected rise of 35-40 cm by 2050 and 175cm by 2100 (relative to the year 2000).<sup>7</sup>

Climate change has had noticeable impacts on ocean warming and ocean acidification already. With the Coral Triangle accommodating a third of global corals and 76% of coral species, ocean warming and acidification in East Asia will take a heavy toll on global reef biodiversity.<sup>8</sup> Since 1980, coral cover in the Asia-Pacific has already declined by about 50% with an average loss of around 1,500 km<sup>2</sup> per year.<sup>9</sup> By 2030, even under a 1.5°C warming scenario, massive bleaching events are expected to occur annually. By 2050, the entire Coral Triangle is projected to be under extreme thermal stress. By the end of the century, under a 1.5°C scenario, 89% of the Triangle's corals are expected to experience serious bleaching, and under a high emissions scenario (4°C warming above preindustrial levels), all coral reef systems could collapse due to mass coral bleaching.<sup>10</sup>

Figure 1. Projected Frequency of heat extremes.<sup>11</sup>

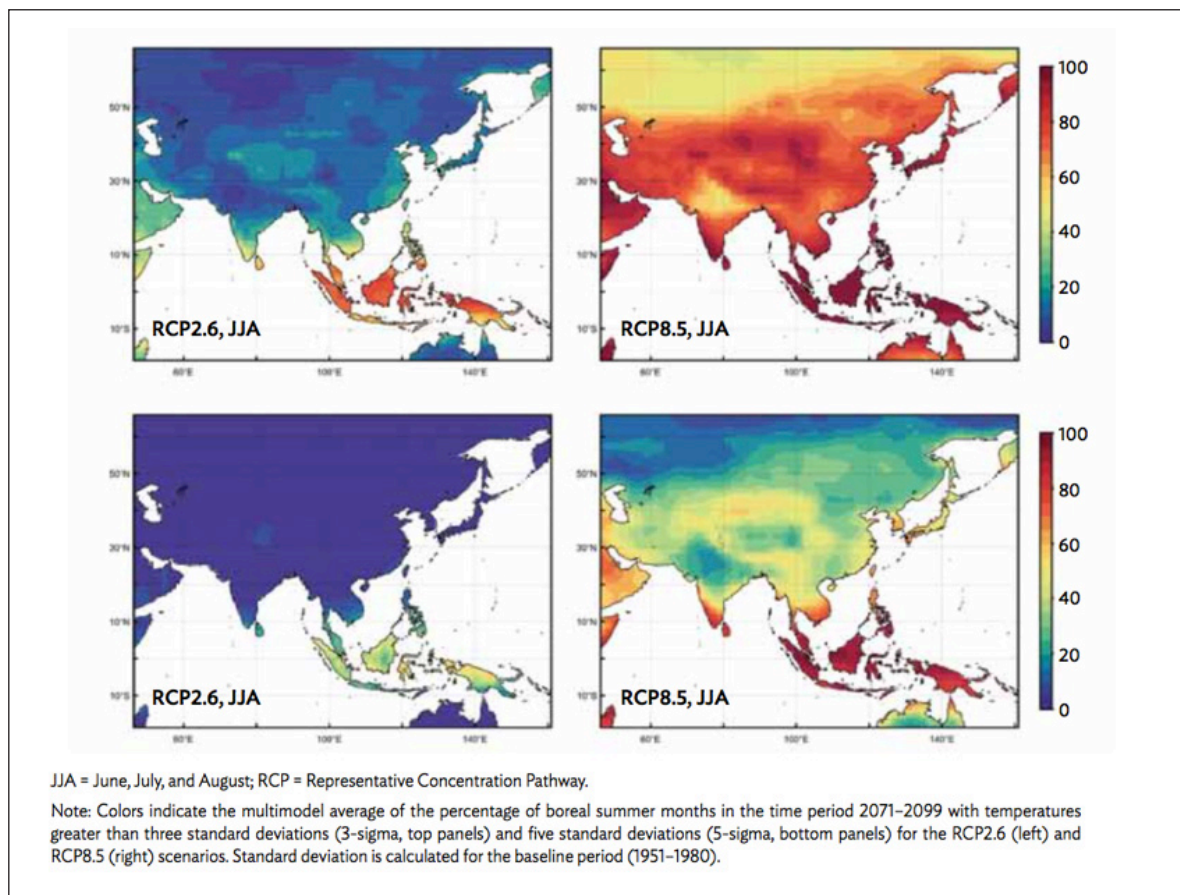
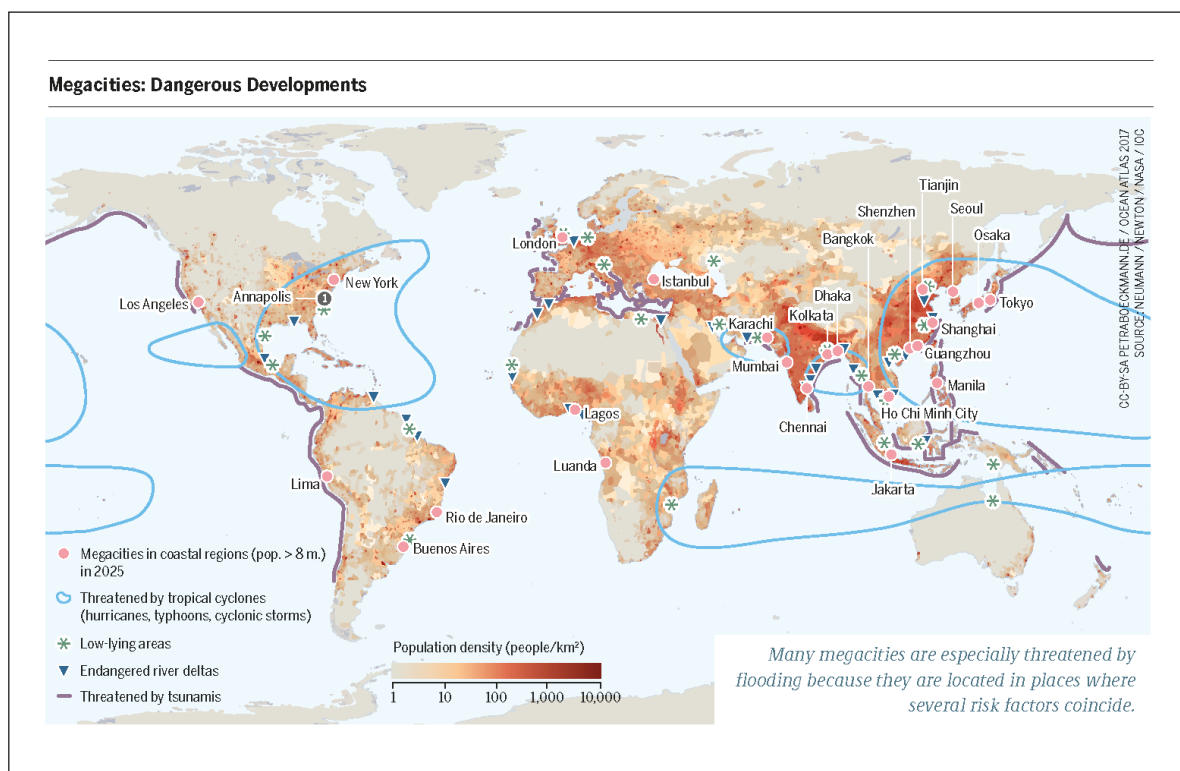
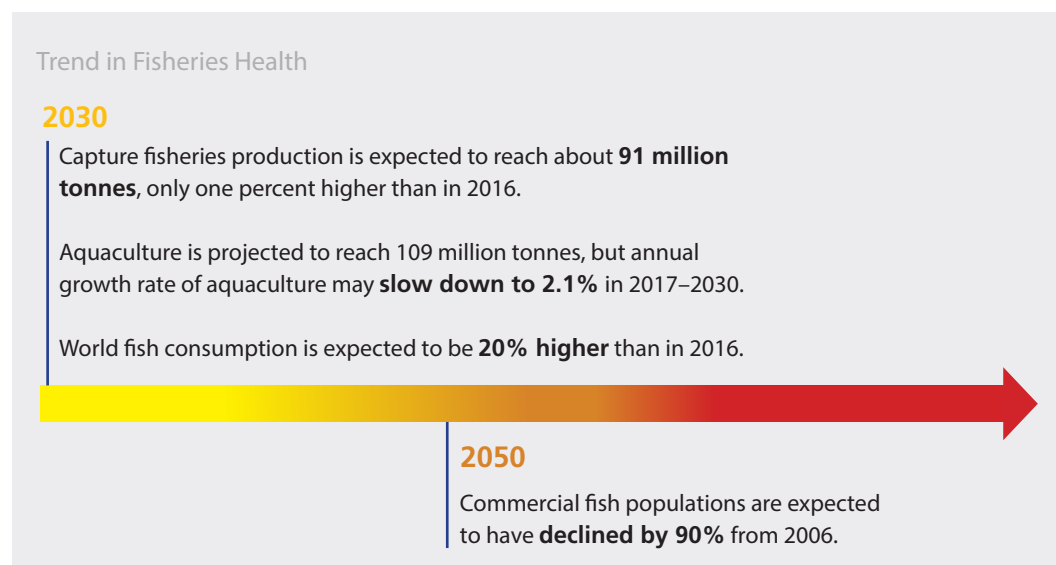


Figure 2. Vulnerability of megacities to climate-induced phenomena.<sup>12</sup>



## 2. Overexploitation of Marine Resources



**Increasing demand for seafood and other marine products which links to growing human populations, coupled with unsustainable fishing practices are expected to result in more extensive overexploitation of stocks and wider ecosystem damage.**

In addition to facing the effects of ocean warming and ocean acidification, marine life in East Asia is at risk due to overexploitation, which has a direct impact on the people of East Asia.<sup>13</sup> The 2019 IPBES Global Assessment Report on Biodiversity and Ecosystem Services found significant human pressure, including over-exploitation, is altering the environment and biodiversity of 66% of the world's oceans.<sup>14</sup>

More than 130 million people living across East Asia's 235,000-kilometer shoreline directly rely on ecosystem services provided by their oceans and coasts, such as tourism, coastal protection from storm surges, and food security.<sup>15</sup>

The socio-economic reliance on the oceans as a source of food has led to the well-documented overexploitation of the region's coastal resources and fisheries,<sup>16</sup> including illegal, unreported, and unregulated (IUU) fishing, which has become a common and urgent transboundary problem for the EAS.<sup>17</sup>

Overfishing coupled with destructive fishing methods, such as bottom trawling and banned practices like poison fishing and blast fishing, are still largely practiced in areas with limited enforcement, especially where there are disputed resource rights.<sup>18</sup> These methods cause significant destruction in marine habitats needed for the survival of many fish populations. Across Southeast Asia alone, 64% of the fisheries' resource base is at a medium to high risk from these practices.<sup>19</sup>

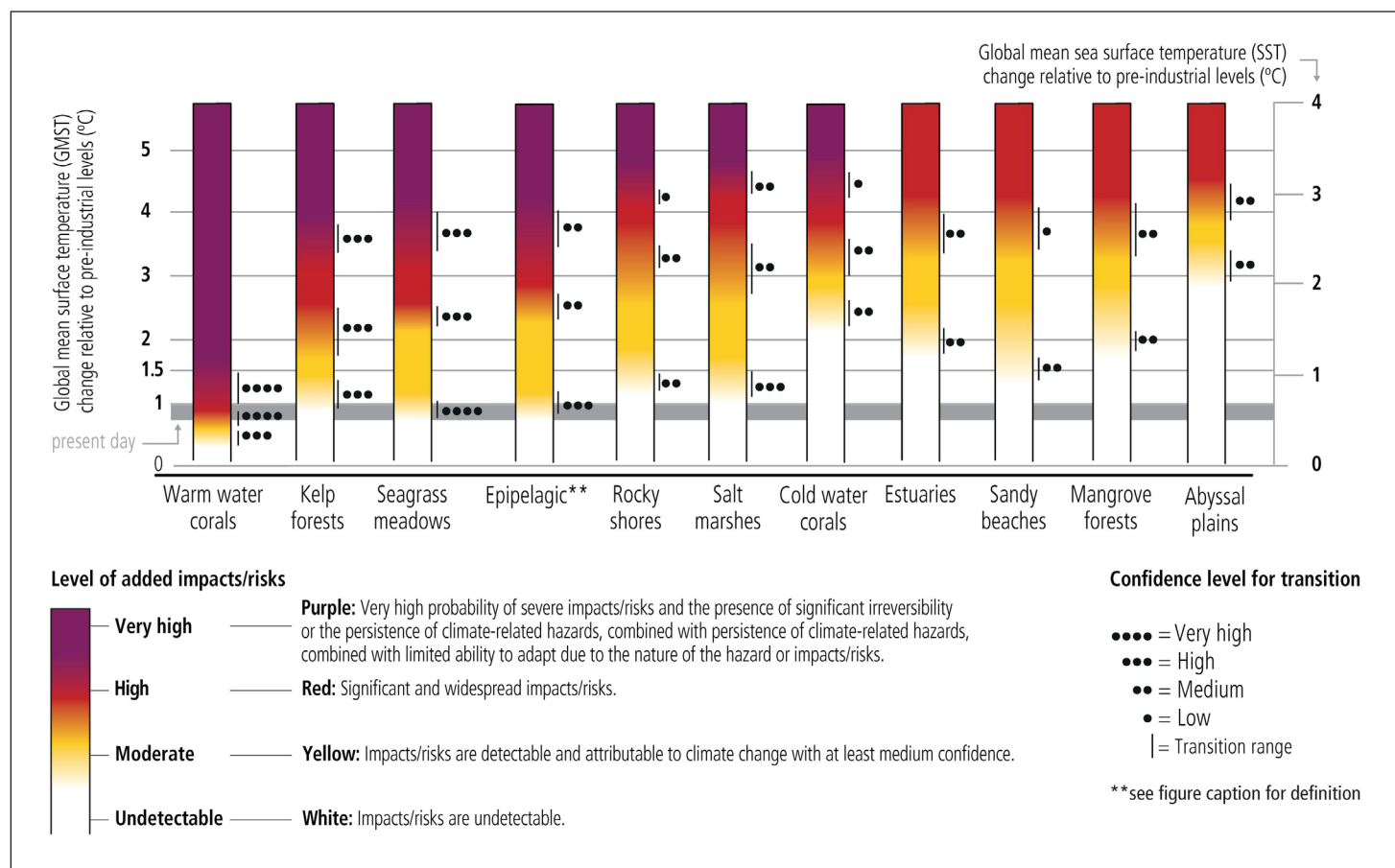
In the ASEAN region, it is estimated that capture fisheries production will rise 1.8% annually from 2015 to 2030 and stagnate at 26.8 million tons from 2030 onwards.<sup>20</sup> By 2050, if

unsustainable practices remain, commercial fish populations are expected to have collapsed, with 90% depletion of the species' baseline abundance (compared to 2006).<sup>21</sup> Studies indicate that reversing this trend will require ceasing all destructive practices and reducing harvest by 50% as soon as possible—a tall order if one is to consider the largely unabated population growth in the region.<sup>22</sup>

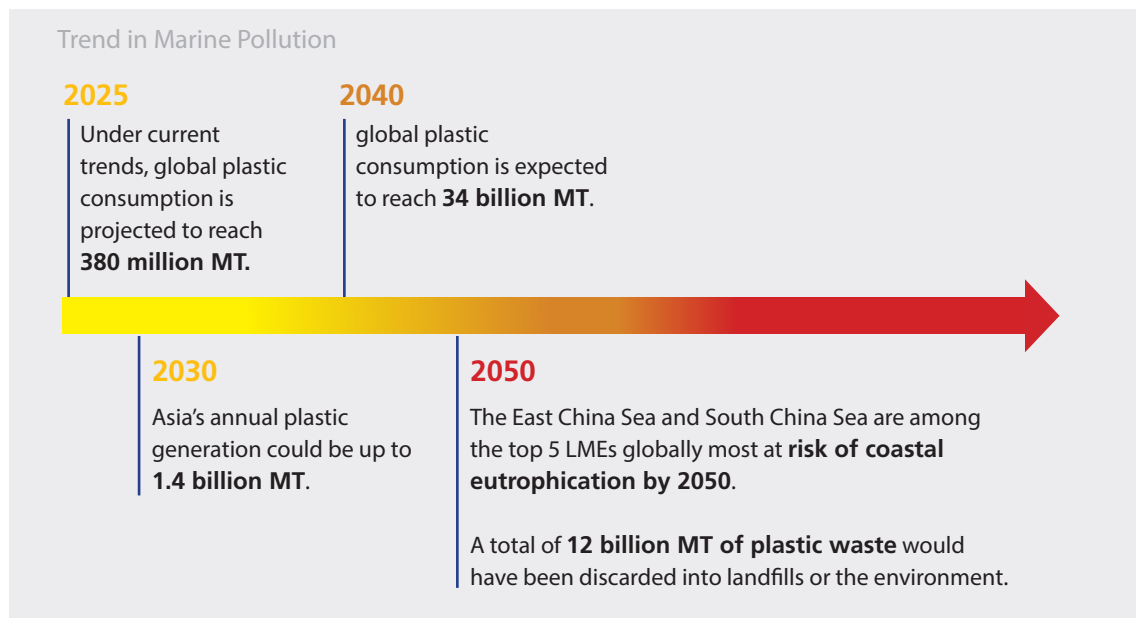
At the same time, demand for fish (and other aquatic protein sources) continues to grow. This need is being increasingly met by aquaculture, which is growing annually by eight percent across the globe,<sup>23</sup> with 89% of global production coming from Asia.<sup>24</sup>

Attention is also shifting to the role that small-scale aquaculture can play. Beyond food production, small-scale aquaculture contributes to rural livelihood development through the provision of food and income-generating opportunities, improving social equity and enhancing the quality of life of poor communities. With the lack of available data,<sup>25</sup> the UN Food and Agriculture Organization (FAO) developed the Nha Trang indicators to measure the performance of the sector and to support local, regional and national policy makers in accounting for its contributions.

**Figure 3. The level of increased impact/risk caused by climate change on different ocean ecosystems. <sup>2</sup>**



### 3. Marine Pollution



**Longstanding and emerging pollution concerns including eutrophication and plastic waste will affect the region's oceans on a massive scale.**

Marine pollution remains a persistent issue for the region's oceans and coasts. While progress has been made on some long-standing issues (for example, oil spill incidents have decreased over the years and vessel discharges have become better regulated and controlled), new issues have emerged. Specifically, increasing incidents of eutrophication, and levels of plastic debris, are expected to become the region's main pollution challenges.

Despite better safety measures, oil spills still pose a risk to marine areas. An oil spill last February 2018 that resulted in a ship collision off the coast of Zhoushan, China was the largest since 1991, dumping 111,000 MT of condensate oil into the East China Sea. The spill threatened to contaminate some of Asia's richest fisheries and impact part of a fishing industry that employs 14 million in China.<sup>26</sup>

Nutrient loading into aquatic systems is another growing source of aquatic pollution. The resulting eutrophication is associated with agricultural production that leads to high levels of fertilizer runoff, that when transported into coastal waters can cause algal growth and the creation of oxygen-less "dead zones".<sup>27</sup> Globally, consumption of fertilizer has increased by 28.8% to 92.4 million tons from 2002 to 2013, with the Asia-Pacific region using more than half of the world's total chemical fertilizers.<sup>28</sup> The East China Sea and South China Sea are among the top 5 LMEs globally most at risk from coastal eutrophication by 2050.<sup>29</sup>

Nutrient pollution and eutrophication, along with the alteration of water circulation dynamics in coastal zones, dispersion of invasive species and degradation of ecosystem biodiversity, can lead to "harmful algal blooms (HABs)". These HABs can disrupt tourism activities and kill fish or render

them too toxic to consume, with significant impacts on fisheries economies.<sup>30</sup> Past HAB fish-kill events in Korea and Japan, for example, have been estimated to cost up to \$100M - \$300M in lost fish.<sup>31</sup>

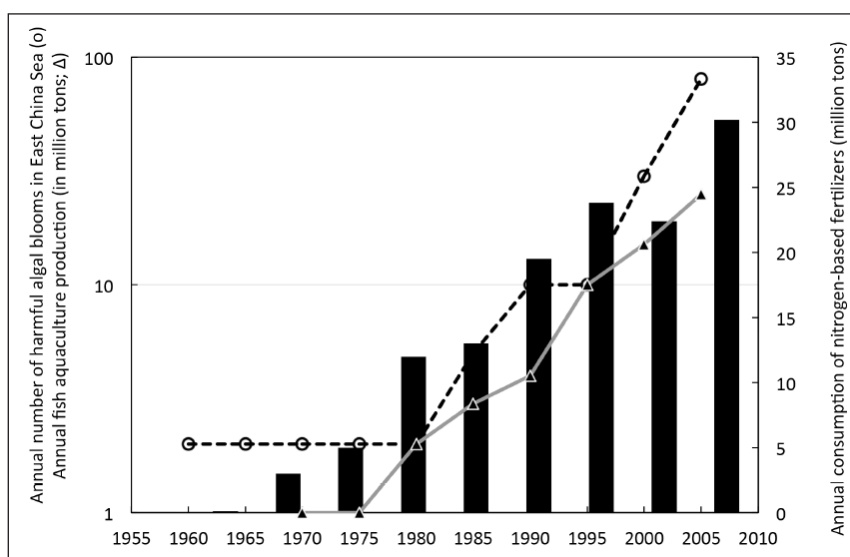
Plastic production has skyrocketed over the last few decades as it has become a ubiquitous part of daily consumption patterns. As of 2017, about 8300 million metric tons (MT) of virgin plastics have been produced. Of the 6300 million MT generated as of 2015, only 9% has been recycled, with 12% incinerated and 79% discarded into landfills and the natural environment.<sup>32</sup> As of 2015, 60% of discarded plastic generated annually are reported to come from five East Asian countries: China, Indonesia, Philippines, Thailand, and Vietnam.<sup>33</sup>

There is an estimated 150 million MT of plastic waste in the ocean, with 8 to 13 million MT per year being added.<sup>34</sup> Six of the top rivers that carry most of this waste are the Yangtze, Yellow, Hai, Pearl, Amur, and Mekong—all of which are located in East Asia.<sup>35</sup> The Yangtze alone, the third longest river in the world, passes through multiple large cities in China and deposits 1.5 million MT of plastic into the ocean each year.<sup>36</sup>

By 2025, global plastic consumption is expected to reach 380 million MT, a 50% increase from 2015 levels.<sup>37</sup> By 2050, it is expected to reach 34 billion MT.<sup>38</sup> In the Asia-Pacific, annual plastic generation is expected to be 1.4 billion MT per year by 2030.<sup>39</sup> By 2050, approximately 12 billion MT of plastic waste will be discarded in landfills or in the natural environment if current production and waste management trends persist.<sup>40</sup>

Studies have found that a high seafood diet could lead to an individual ingesting 11,000 pieces of microplastic annually,<sup>41, 42</sup> and that 83% of tap water<sup>43</sup> and 90% of bottled water circulating for consumption are highly likely to contain microplastics.<sup>44</sup> In a study conducted on 125,000 corals across the Asia-Pacific region, 89% of those corals fouled by plastic were suffering disease, compared to plastic-free reefs, with only four percent of the corals diseased.<sup>45</sup>

**Figure 4. Comparison of the number of harmful algal bloom events in the East China Sea over time.<sup>48</sup>**





If left unaddressed, the impacts of both eutrophication and plastic waste within the EAS will lead to increased damage to coastal ecosystems and economies across the region. Such effects will likely cascade to cause further biodiversity loss and food insecurity in coastal areas. Estimates place the current damage of plastic pollution on the global marine ecosystem at USD13 billion. In the Asia-Pacific region alone, plastic pollution causes an estimated USD1.3 billion to be lost each year in ocean-related industries such as tourism, fishing, and shipping.<sup>46, 47</sup>

Figure 5. Global plastic consumption<sup>49</sup>

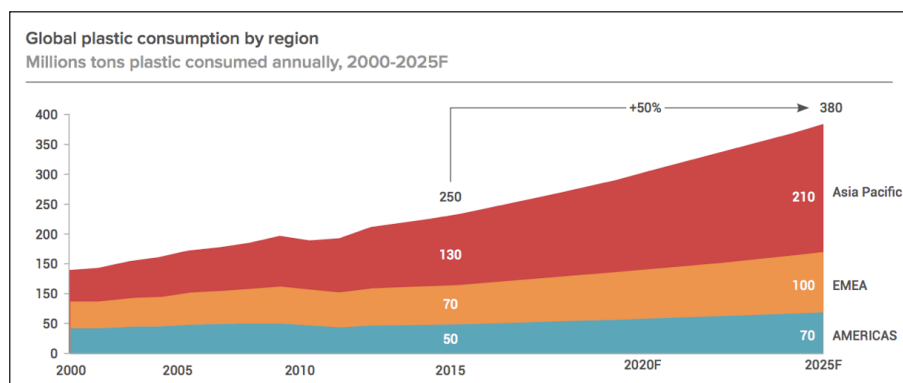


Figure 6. Southeast Asia as the dominant source of marine litter.<sup>50</sup>

Rank	Country	Waste Generation Rate [kg/ppd]	% of Waste that Is Plastic	% Mismanaged Waste	Plastic Waste [MMT/yr]	% Mismanaged Plastic Waste	Marine Debris [MMT/yr]
1	China	1.10	11	76	8.82	27.7	1.32-3.53
2	Indonesia	0.52	11	83	3.22	10.1	0.48-1.29
3	Philippines	0.5	15	83	1.88	5.9	0.28-0.75
4	Vietnam	0.79	13	88	1.83	5.8	0.28-0.73
5	Sri Lanka	5.1	7	84	1.59	5.0	0.24-0.64
6	Thailand	1.2	12	75	1.03	3.2	0.15-0.41
7	Egypt	1.37	13	69	0.97	3.0	0.15-0.39
8	Malaysia	1.52	13	57	0.94	2.9	0.14-0.37
9	Nigeria	0.79	13	83	0.85	2.7	0.13-0.34
10	Bangladesh	0.43	8	89	0.79	2.5	0.12-0.31

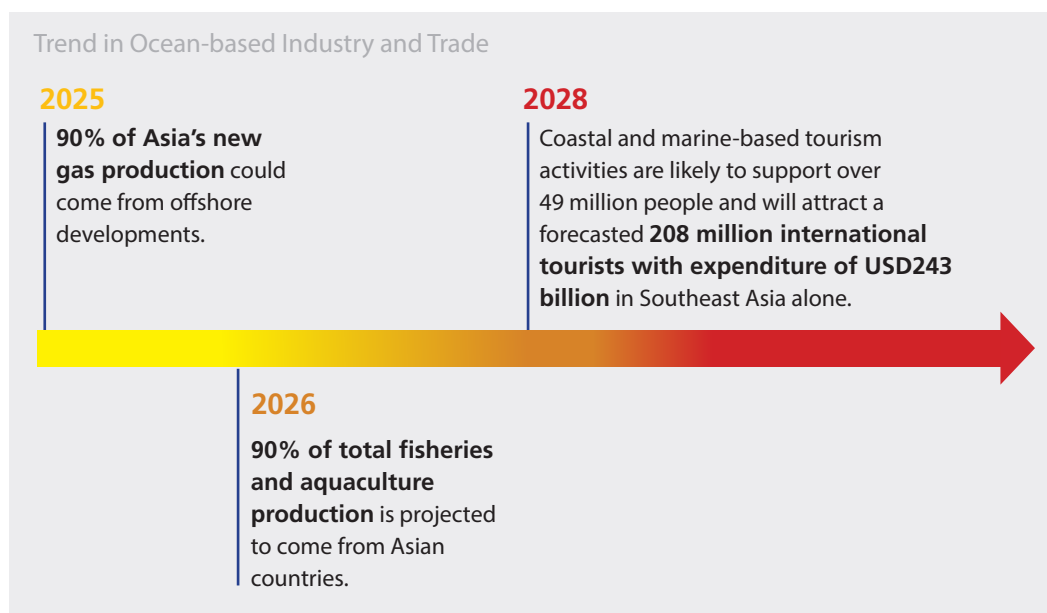
## SPOTLIGHT

### INDONESIA'S MARINE DEBRIS ACTION PLAN

Recognizing that Indonesia's rivers and streams are host to about 200,000 tons of plastic waste (14.2% of global total),<sup>51</sup> Indonesia established a National Ocean Policy devoting USD1 billion per year and launched a National Marine Debris Action Plan targeting 70% reduction in marine plastic waste by 2025.<sup>52</sup> The government commits to do this through five strategies: (i) behavioral change, (ii) reduced land-based leakage, (iii) reduced sea-based leakage, (iv) enhanced law enforcement and financing, and (v) research and development. The program engages 16 ministries and agencies with 59 activities to support the strategies.<sup>53</sup>



## 4. Ocean-based Industry and Trade



**The growth of ocean-based trade and industry presents a new frontier for economic development in the region.**

East Asian economic growth has accelerated and remains the fastest growing in the world. Projections for the economies of East Asia leading to 2020 remain generally positive, especially with strong domestic private consumption and government-led infrastructure plans, and fiscal policy supportive of expansion.<sup>54</sup>

Oceans currently contribute an estimated USD1.5 trillion per year to the global economy.<sup>55</sup> The growth of ocean-based industry and trade in East Asia is becoming a major part of the region's economic agenda as evidence points to the business sector increasingly seeking opportunities to build new assets in previously untapped sectors and enhance trade cooperation. Conversely, this adds to the pressure on coastal and marine sectors, particularly as such developments are expected to impact marine habitats and coastal resilience.

In East Asia, oceans and coasts contribute as high as 19 to 21% of GDP, especially in countries like Vietnam and Indonesia, where marine industries serve as the primary economic engines.<sup>56</sup> The following are some of the most significant ocean-based industries in the region.

**Fisheries and aquaculture:** Eight of the top 15 marine capture production zones are located in East Asian countries. Over 78% of world aquaculture production comes from East Asia, particularly China.<sup>57</sup> By 2026, global fish production is expected to reach 194 million tonnes, with aquaculture accounting for 102 million tonnes, and 90% of this production coming from Asian countries.<sup>58</sup> Small-scale artisanal fisheries will continue to grow their contribution to domestic and international markets, creating a renewed impetus to engage the spectrum of stakeholders working within the community-based fisheries sector.

**Tourism and coastal development:** With 80% of tourism activities happening in coastal areas, the growth in tourism-related activities will impact the EAS and its countries tremendously. Southeast Asia's travel and tourism sector alone generated employment and direct economic benefits across various supply chains at an estimated USD136 billion in 2017. By 2028, tourism-related activities will support over 49 million people and will attract a forecasted 208 million international tourists, with expenditures of USD243 billion. Demand for cruising increased 20.5% in the last five years, with 10% of deployed capacity share in Asia, and is the fastest-growing category in the leisure travel market. Asia is therefore expected to see the highest long-term growth in tourism across all aspects of the industry.<sup>59</sup> While unsustainable tourism options continue to grow with the overall growth of tourism, evidence suggests that ecotourism is expected to drive more demand for tourism within East Asia, as it is already giving birth to a new supply of destinations and experiences in the region and reconfiguring previously established sites into more sustainable and eco-friendly experiences highlighting the natural beauty of the location.

**Oil and gas:** Asia is the biggest and fastest-growing consumer of oil, growing from 27% of global consumption in 2000 to 35% in 2016,<sup>60</sup> while its own output has fallen to only 2.1% of global oil recoverable reserves.<sup>61</sup> Over 130 new crude and natural gas projects will start operations in Asia in the next eight years. By 2025, 90% of Asia's new gas production will come from offshore developments.<sup>62</sup>

## SPOTLIGHT

### OFFSHORE WIND AND OCEAN RENEWABLES ON THE RISE ACROSS EAST ASIA

Ocean-based energy is gaining traction in East Asia. South Korea's 254 MW Sihwa embarkment is the largest tidal power plant in the region. About 160 million tons of water in Sihwa Lake—or half of the lake's total water quantity—flows in and out of the floodgate and waterwheel.<sup>63</sup> In the Philippines, the San Bernardino Ocean 1.5 MW Power Plant will be powered by the tides of the San Bernardino strait and is expected to be operational by 2019.<sup>64</sup>

**Ports and shipping:** As global container shipping increases by 10% annually, principal transport routes in East Asia, particularly, approaches to ports in Japan and the ports of Shanghai, Singapore, and Hong Kong, may experience more traffic.<sup>60</sup> While positive from an economic standpoint, this heightened activity could add pressure on marine environments in the form of pollution, whale strikes, increased anthropogenic noise, transportation of invasive species, and other risks.<sup>65, 66, 67</sup>

**Deep-sea mining:** As demand for nickel, cobalt, copper, and manganese to make mobile phones, batteries, and solar panels continues to grow, deep sea mining is another activity that could increase in the region's oceans. By 2030, global demand for nickel, for example, is expected to double to 4 million MT. It is believed that 76 million MT of these metals in land-based deposits will last for only 40 more years, while an additional 70 million MT are available in the ocean floor.<sup>68</sup> Given this increasing demand, the International Seabed Authority, which regulates deep-sea mineral exploration in areas beyond states' Exclusive Economic Zone under the UN Convention on the Law of the Sea (UNCLOS), issued 29 licenses for exploration, with five held by China, Japan, and South Korea for cobalt-rich crusts in the Western Pacific Region.<sup>69</sup> However, studies suggest that the deep seabed, especially hydrothermal vents, function as essential sinks where microorganisms adapted to the environment sequester carbon and methane. Damage to vital seabed functions could have crucial implications on climate regulation and biodiversity.<sup>70</sup>

# IV. Turning the Tide: Areas for Cooperation to Support the Future Health of East Asia's Oceans and Coasts

In contrast to these forecasted trends, unprecedented levels of connectivity, innovation and a genuine desire for collaboration are setting the stage for the stakeholders of the EAS to come together to transform these challenges into opportunities and in so doing boost sustainable development and resilience in the region. This section offers a review of emerging platforms, ongoing initiatives and planned programs across the areas of ocean governance, technology and private sector engagement and finance, which can be harnessed to address the abovementioned trends, demonstrating an East Asia ripe for cooperation and very much ready to tackle the challenges facing its oceans and coasts.

## 1. Coastal and Ocean Governance

**Navigating East Asia's shared journey towards healthy and prosperous oceans and coasts.**

The cumulative effects of climate change—combined with overexploitation, coastal and marine-based pollution, and expanded trade and economic activities across the EAS—are set to steer the region into uncharted territory. On top of the macro socio-economic impact of these trends on East Asian economies, its more direct human impacts should not be underestimated. Food and water shortages, increasing disease and other health-related issues, and the collapse of certain industries—fisheries, most notably—are likely to cascade into a host of new and unexpected challenges for the region.<sup>71</sup>

A number of studies are suggesting that drastically transformed economic and social systems resulting from the inability of communities to adapt to climate change will cause people to migrate both within national borders and from developing countries into developed ones.<sup>72</sup> Large and long-term population movements may have adverse effects economically, socially, and even psychologically, on both the sending and receiving communities, and require cooperation, as well as short and long-term strategic planning.<sup>73</sup> Of the six countries assessed in the same studies, China, the Philippines, and the Mekong River nations, have been identified as particularly vulnerable to climate-induced migration as a result of forced departure from circumstances that could arise from typhoons, droughts, floods, and SLR, specifically along low-lying coasts.<sup>74</sup>

Studies suggest that improving waste management by five countries, namely the Philippines, China, Vietnam, Indonesia and Thailand would result in a nearly 45% decline in inputs of plastic to the ocean.<sup>75</sup> Increasing knowledge through mutual cooperation and information sharing about plastic waste leakage volumes, their effects on the ecosystem, and solution economics, can help to facilitate the discussion on waste management and an ocean plastic reduction agenda.

The increasing effects of environment-related issues across countries will hasten the need for more efficient and responsive cooperation structures, and consensus on terms, definitions, issues, directions and goals among stakeholders, along with innovative partnerships and technologies to monitor, address, and resolve issues. The following governance structures and platforms should be considered as indispensable to navigating East Asia's future:

**Climate Change:** While an immensely complex and challenging issue, the effects of climate change can be mitigated, and its progress slowed. The Paris Agreement within the UN Framework Convention on Climate Change (**UNFCCC**) is a crucial global treaty that addresses greenhouse gas emissions, mitigation, adaptation and finance post-2020, by targeting to hold the increase in global average temperature to well below 2°C.<sup>76</sup> For East Asia, Japan, China, and Indonesia form part of the world's 20 largest CO<sub>2</sub> emitters, while the Philippines, Myanmar and Thailand are some of the world's most vulnerable countries to the impacts of climate change.<sup>77</sup> This makes the case for cooperation within the region particularly salient as addressing climate change in this part of the world has the potential of demonstrating the co-benefits of reducing emissions while improving adaptive capacities. Furthermore, the Sendai Framework for Disaster Risk Reduction (2015-2030), which was adopted universally by East Asian countries, outlines the goals for reducing vulnerability against climate-induced disasters, among others, as well as increasing capacity and partnerships between government, private sector, and civil society to improve adaptation and resilience particularly for coastal areas.

**Sustainable Development and Oceans:** The United Nations (**UN**) adopted the 2030 Agenda for Sustainable Development and 17 Sustainable Development Goals (**SDG**), which are broad, aspirational, and ambitious goals serving as guidelines for global development from 2016 to 2030. SDG 14 "Life Below Water" seeks to "conserve and sustainably use the oceans, seas and marine resources for sustainable development."<sup>78</sup> With this goal, ocean governance is seen as an essential tool in balancing the economic development of the region's ocean economy with the health of its oceans and coasts. During the UN Ocean Conference in 2017, more than 1,400 voluntary commitments were made in support of SDG 14 by various stakeholders, including by countries and organizations in East Asia.<sup>79</sup>

Strategic and long-term ocean governance of transboundary resources is also accomplished through sustainable development of shared Large Marine Ecosystems (**LMEs**). Under the Global Environment Facility (GEF), six LMEs have been defined in the region—the South China Sea, Indonesian Sea, Sulu-Celebes Sea, Gulf of Thailand, East China Sea and Yellow Sea. LME projects support sustainable fishing practices, prevention, reduction and control of coastal pollution caused by land-based activities or nutrient reduction, and coastal zone management, among other activities.<sup>80</sup>

**Biodiversity:** Given that 60% of East Asia's oceans are beyond state jurisdictions, the proposed implementing agreement to the UNCLOS for the UN Process for the Conservation and Sustainable

Use of Marine Biodiversity in Areas Beyond National Jurisdiction (**BBNJ**) is emerging as a critical international ocean governance development. This is especially important as countries strive to protect 10% of coastal and marine areas by 2020 and reach the Aichi Biodiversity Targets and prepare for the Post-2020 Global Biodiversity Framework under the UN Convention on Biological Diversity (**CBD**), as well as the Nagoya Protocol for areas within state jurisdiction. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (**CITES**), which regulates the import, export, re-export and introduction from the sea of species, and the Convention on the Conservation of Migratory Species of Wild Animals (**CMS**), which include marine animals, are also key agreements that would help conserve biodiversity in the oceans.

**Fisheries:** The UN proclaimed the year 2022 as the International Year of Artisanal Fisheries and Aquaculture (**IYAF**) with the UN Food and Agriculture Organization (**FAO**) as lead agency. The renewed focus on artisanal fisheries has been welcomed by many countries as growing regional cooperation within the Western and Central Pacific Fisheries Commission (**WCPFC**) towards more sustainable approaches to fisheries gains momentum and the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing drives a more enabling environment for responsible fisheries, as initially articulated by the FAO Code of Conduct for Responsible Fisheries.<sup>81</sup> For small scale fisheries, the FAO, in collaboration with representatives of small scale fisheries organizations, developed the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines), which represents the first ever international instrument dedicated to SSF.<sup>82</sup>

**Marine Pollution, specifically Plastics and Nutrient Loading:** The United Nations Environment Assembly under the United Nations Environment Programme released a Resolution on Marine Litter and Plastics in December 2017. As a contribution to SDG 14, 193 UN Member States arrived at a consensus that they will aspire to “prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities including marine debris and nutrient pollution” by 2025. This has since spurred voluntary commitments and recommendations such as the G-20 Action Plan on Marine Litter and hopes to set the stage for more robust global and regional policies on managing marine pollution.

**Shipping and Ports:** International shipping accounts for around 2.2% of global CO<sub>2</sub> emissions. By 2050, this is expected to increase between 50 to 250% under BAU scenarios.<sup>83</sup> The International Maritime Organization (**IMO**), under the UN, continues to be a relevant platform to facilitate discussion on safety and security as well as managing marine and atmospheric pollution from shipping in East Asia. Thus, even if GHGs from shipping are not explicitly included in the Paris Agreement, the IMO Marine Environment Protection Committee has agreed to an Initial Strategy that aims for GHG emissions from international shipping to peak as soon as possible and decline by at least 50% by 2050 compared to 2008, whilst pursuing efforts towards phasing them out in this century.<sup>84</sup> This is pursuant to its 2018-2023 Strategic Plan. The plan also identifies ocean governance as being among its priorities and maps out how the shipping industry can take on a more constructive role towards addressing marine pollution and responsible trade.

Less formally, the International Association of Ports and Harbors (**IAPH**), an industry organization representing 180 ports and 140 port-related businesses across 90 countries, in November 2008 has launched its own World Ports Climate Initiative that aims to address the environmental impact of port operations on coastal and marine environments. In recent years, several of East Asia's ports have

come together under this program to cooperate on discussions on siting criteria, carbon footprint management, onsite power supply, clean cargo handling, and port clean air programs, among others.

**Transboundary Cooperation:** Cooperation among countries is essential for ensuring food, water, and national security, as well as reducing conflict among states. Countries within the EAS are now demonstrating shifting attitudes in governance and state-to-state cooperation that will have possible implications on the governance of the EAS. For example, decentralization and an emphasis on regional governance are becoming more prominent in countries like the Philippines and Indonesia, with the former recently passing the Bangsamoro Law aimed among others, at establishing autonomy for major parts of Mindanao to manage their natural resources, and the latter recently concluding regional elections as a function of the country's policy for decentralization. These domestic transitions are very likely going to influence how local governance will take a more prominent role in managing coastal and ocean-based issues.

Within the region, the Association of Southeast Asian Nations (**ASEAN**), composed of Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam, has developed the ASEAN Cooperation on Environment in pursuit of its sustainability goals under the ASEAN Socio-Cultural Community (ASCC) Blueprint 2025, focusing on the following: (a) Conservation and Sustainable Management of Biodiversity and Natural Resources, (b) Environmentally Sustainable Cities, (c) Sustainable Climate, and (d) Sustainable Consumption and Production.<sup>85</sup> Notably, the ASEAN has also partnered with China on environmental matters, including the establishment of the China-ASEAN Environmental Cooperation, and three successive action plans, the current one being the ASEAN-China Strategy on Environmental Cooperation 2016-2020.<sup>86</sup>

The ASEAN and China recently announced their agreement on a Single Draft South China Sea Code of Conduct Negotiating Text (SDNT) to serve as the basis for the adoption of a Code of Conduct (COC) in the South China Sea. Adhering to the UNCLOS, the SDNT proposes areas where countries have a "Duty to Cooperate," including marine environmental protection, marine scientific research, safety of navigation and communication at sea, and combating transnational crime.<sup>87</sup>

The Mekong River Commission, the only inter-governmental organization that works with Cambodia, Lao PDR, Vietnam and Thailand to explicitly manage shared water resources and the sustainable development of the Mekong River, is likely also to gain renewed relevance in light of the regional thrusts to address marine litter flowing from the Mekong into the EAS.

PEMSEA jointly created and agreed to implement a regional strategy called the 'Sustainable Development Strategy for the Seas of East Asia'. The SDS-SEA serves as an integrating platform for the implementation of the various action plans (including LME SAPs) and programs at the regional, national and local level and show linkages of the governance and management programs to the conventions/agreements such as the UNFCCC, CBD, etc and the SDGs

## SPOTLIGHT

### PEMSEA'S SDS-SEA IMPLEMENTATION PLAN

Recognizing the numerous ocean-related challenges in the region, the 14 Partner Countries of PEMSEA adopted the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA) in 2003. The SDS-SEA is a package of relevant principles, strategies, objectives and implementation approaches for achieving sustainable development of oceans and coasts of the Seas of East Asia region. In 2015, the SDS-SEA was updated to ensure that it remains relevant to the needs and circumstances of the region, taking into account the global agreements and targets that were adopted after 2003, including the UN Sustainable Development Goals,<sup>88</sup> the UNFCCC Paris Climate Agreement,<sup>89</sup> the Convention on Biological Diversity Action Programme and the Aichi Biodiversity Targets<sup>90</sup> and the Sendai Framework for Action on Disaster Risk Reduction and Management.<sup>91</sup>

An SDS-SEA Implementation Plan will guide action through 2022 for priority governance and management programs that contribute to sustainable development of oceans and coasts and blue economy growth in the region. The priority management programs under the SDS-SEA include Biodiversity Conservation (e.g., MPA Networking, migratory marine species and blue carbon), climate change (e.g., disaster risk reduction, green ports and renewable energy) and pollution reduction (nutrient management, ocean plastic pollution and Source-to-Sea approaches). Cutting across these are programs for strengthening governance, knowledge management and blue economy and investments. Looking beyond 2022, the findings from the research and interviews for this report validate these as critical issues and areas for intervention.

**Capacity Building and Research:** Integrated coastal management (**ICM**), will continue to be a central driving force for maintaining the health of the region's 235,000 kilometers of coastline. ICM frameworks together with ecosystem-based management (**EBM**), and marine spatial planning, are further being updated to help coastal communities, local governments and other stakeholders achieve environmental, social and economic development targets in relation to the new challenges facing food security and livelihoods, pollution reduction and waste management, freshwater use and supply, habitat protection and restoration, and natural and man-made hazard prevention and management, all of which are being influenced by the aforementioned environmental and economic trends.<sup>92</sup>

Identifying the nature and degree of crucial interventions needed to facilitate climate mitigation, adaptation, and resilience, and how these interrelate with food security, health, and other socioeconomic impacts, such as climate-induced migration, are now also increasingly being prioritized across the region's scientific and academic institutions. Various degrees and diploma programs are now emerging across East Asia's top universities that directly cater to coastal and marine resource management and conservation. Research institutions such as the Korea Institute for Ocean Science and Technology (**KIOST**), The Ocean Policy Research Institute (**OPRI**), University of the Philippines Marine Science Institute (**UPMSI**), and the First Institute of Oceanography (**FIO**) in China, among others, are now placing emphasis on an innovative research agenda that can spur more responsible and sustainable ways to conserve ocean and coastal-based resources that furthers East Asia's contribution to the SDGs.



## 2. Technology

### **New and emerging technologies open up a ‘digital ocean’<sup>93</sup> of opportunities.**

The fusion of technologies under the “Fourth Industrial Revolution” provides decision makers the ability to more effectively harness science-based approaches to sustainable development while also facilitating more inclusive and robust ocean governance for the seas of East Asia.

Technology can be used to empower stakeholders to monitor marine ecosystem health and biodiversity within their area, help consumers make proactive decisions about how they participate in the supply chain, inform scientists and researchers on effective innovations, including biotechnology, and arm policymakers with relevant and real-time and predictive data regarding human stressors on coasts and oceans.

Data collection and monitoring have become more accurate since the introduction of big data and analytics a decade ago. Advanced and interconnected sensor platforms can now monitor fish catch and stocks, track fishing boats, record and monitor fishing activities, and alert for conditions that show illegal or dangerous fishing.

Improved weather forecasting and information sharing on the risk of transboundary crises across the region are now much easier to access thanks to the rise of satellite and communication technologies, complemented by the ease of harnessing social media for dissemination of key information to broader populations.

Major developments in hardware components now make it possible for robots and drones to extract resources with less environmental impact and for real-time satellite tracking devices to trace and report movement or incidental capture of non-target or endangered species.<sup>94</sup> Combined with artificial intelligence (AI) and deep learning (DLM) applications, the interaction of these devices through the Internet of Things (IoT), and the immutability of blockchain technology, these technologies can analyze, extract important patterns, and aid in decision making based on vast amounts of untapped data with concise and reliable results.<sup>95</sup> Currently, AI is being used to track wildlife, drones and crowdsourcing to monitor forest health, and remote sensing data to detect deforestation problems, which then naturally lends itself to possible applications in coastal and marine contexts.<sup>96</sup>



## SPOTLIGHT

### HARNESSING ARTIFICIAL INTELLIGENCE TO PREDICT ALGAL BLOOMS

Recent technological advancements show promising results in providing advanced warning to affected communities of harmful algal blooms (HAB) in Korea, an annual phenomenon in the country causing extreme environmental and economic damage amounting to several millions.<sup>97</sup> One study applying AI and DLM on four major rivers of South Korea to predict algal activity showed higher prediction rates over traditional regression analysis models and were closer to actual data.<sup>98</sup> Another study applying remote sensing used satellite sensor systems on large spatial scales with high temporal resolutions for effective monitoring of harmful algal blooms in coastal waters found machine-learning techniques to be efficient and useful tools to reflect data from complex coastal waters.<sup>99</sup>

With projections for the global sustainable seafood market to exceed USD11.5 billion by 2020, coupled with a strong push from the retail and hotel sectors to increase East Asia's share in sustainable seafood supply, emerging technologies that can facilitate improved transparency and traceability across the supply chain are now rising in popularity and relevance. Blockchain-enabled smart contracts in electronic distributed ledgers now have the potential to record the movements of marine products from bait to plate, tracing the sustainability journey of every commodity and actor in the supply chain of a product.<sup>100</sup> Further complemented by DNA barcoding, this makes possible the almost-instant identification of seafood via the matching of fish products to a standardized genetic library for all fish species.<sup>101</sup>

Blockchain presents an area of potential that may enable financial investments and the participation of individuals in projects involving sustainable oceans, such as Clean Water Coin, which uses a blockchain platform to raise funds for clean-water projects across the globe, and PlasticBank and RecycleToCoin, two platforms that reward cryptocurrency in exchange for ocean recyclables.<sup>102</sup>

In relation to marine pollution, biotechnology innovations through gene editing and advanced breeding techniques can also provide solutions to fish-free feed, waste-cleaning organisms, genetically modified fish that grow faster to reduce fish-feed, and microbes that can metabolize plastics.<sup>103</sup> There is also biotech research on assisting coral species to be more resilient to changing ocean conditions.<sup>104</sup> Similarly, biotech innovations through genetically guided breeding may screen out vulnerabilities to disease.<sup>105</sup> Research into the development of bio-plastic that easily degrades is an emerging opportunity.

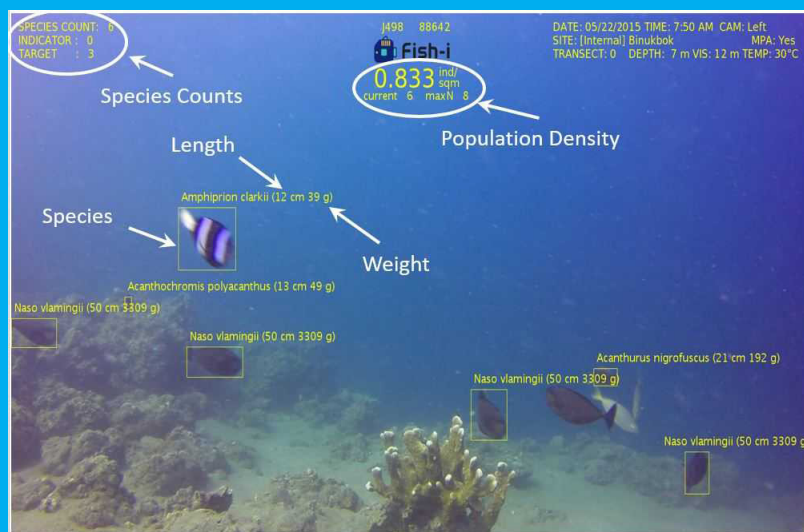
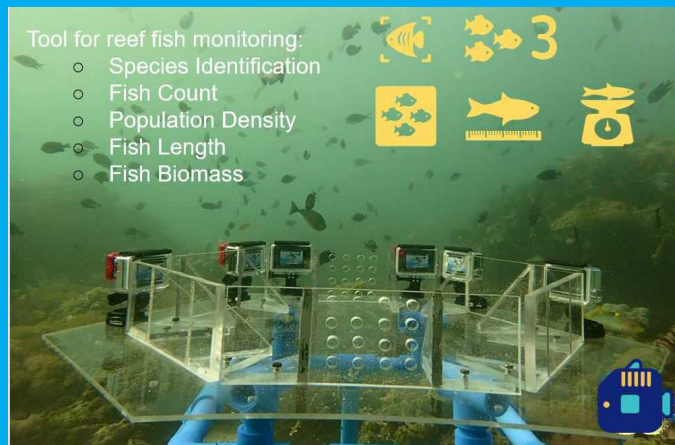
Considering the range of existing and emerging technologies fast becoming available and relevant for the EAS, researching, prototyping and effectively scaling them so as to aid in the development of actionable solutions for the maximum benefit of the EAS while properly assessing cost considerations, scalability, and adaptability will therefore become imperative post-2020.

## SPOTLIGHT

### "FISH-i"—A NEXT GENERATION APPROACH TO DESIGNING AND MONITORING MARINE PROTECTED AREAS

Fish-i is a semi-automated visual system for assessing reef fish using underwater footage. The footage can be gathered by any ordinary diver and is then processed through deep machine learning systems to automatically identify, count, measure, and calculate the biomass of fish populations. These factors are valuable indicators of the health of the reef, and usually require manual counting via high-level experts in marine science.

With Fish-i's simple, automated process, baseline data collection process can be generated through citizen science, thus, enabling for example, the participation of coastal communities and encouraging them to act as stewards of marine resources. Expert interpretation of the data gathered will still be required.



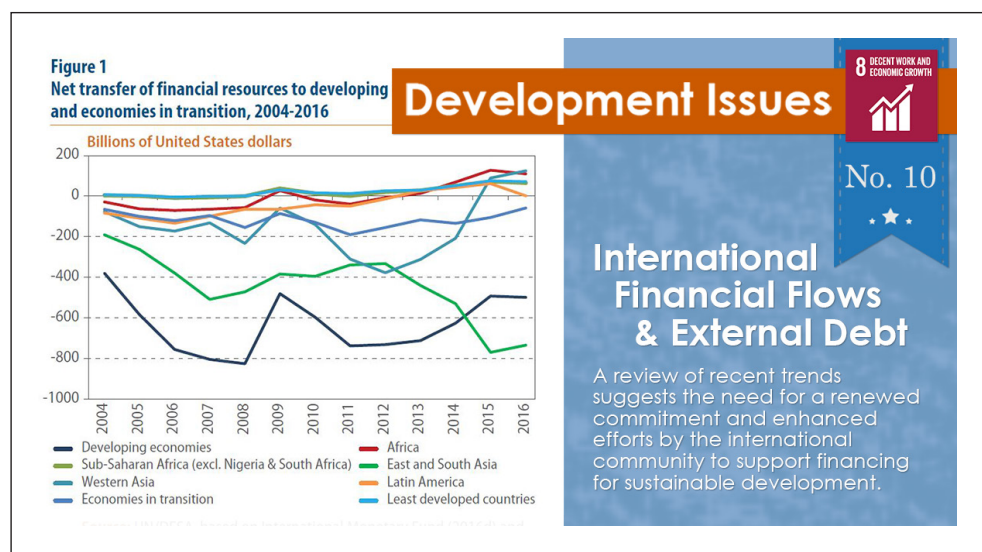
### 3. Private Sector Engagement and Finance

**Private sector-led development gains traction as a new paradigm for sustainable development in East Asia.**

In absolute terms, the largest global investment needs are found in East Asia, with an annual average of about USD1.7 trillion.<sup>106</sup> In terms of climate infrastructure investment needs for 2016 to 2030, East Asia's needs are estimated to amount to USD16 trillion.<sup>107</sup> East Asia's success as a region will be largely dependent on its ability to sustainably harness the resources of its oceans and coasts for trade and commerce. Identifying the appropriate mix of economic and conservation interventions in tandem with the design and establishment of suitable infrastructure along East Asia's oceans and coasts will spell all the difference in ensuring positive impacts and mitigating the negative impacts of such activities on the social, environmental, food and health security of stakeholders in the region.

As economic growth and technological advancements fuel more ocean-based trade and infrastructure developments across East Asia under the backdrop of mounting environmental pressure, the case for mobilizing public and private resources towards establishing "blue economy" becomes more compelling.

In line with trends that have seen a reduction in overseas development assistance to Asia, aid programs have, over the last decade, incrementally refocused towards interventions that explicitly de-risk private investments and unlock commercial funding, as there is now widespread recognition that the private sector has a huge role to play in establishing inclusive, market-driven solutions towards achieving the SDGs. Globally, an estimated USD81 billion of private finance was mobilized through development finance from 2012 to 2015, with more projected beyond 2020, as new business models catering to addressing the needs of the base of the pyramid outperform more traditional aid approaches.<sup>108</sup>



Public-private partnerships are therefore expected to continue to play an important role post-2020 as both the government and business sectors try to close the SDG financing gap of about USD2.5 trillion per year.<sup>109</sup> This financing gap however is dwarfed by the growth of East Asia's wealth.

By 2025, Asian investors and high net-worth individuals will represent an estimated USD42 trillion in wealth.<sup>110</sup> This surge in private wealth is being complemented by a growing interest within Asia's private sector towards meaningfully contributing towards the SDGs and sustainable development of the region. As such, this has influenced a rising number of families and investment houses in the region to rally alongside the largest banks from China, select philanthropies from Japan, Korea, and Hong Kong and sovereign wealth funds and private family funds from Southeast Asia to increasingly look at deploying financing that creatively and profitably address the sustainability challenges of East Asia.

## SPOTLIGHT

### A MODERN-DAY SILK ROAD ON LAND AND ON SEA

The International Finance Corporation recently announced its Managed Co-Lending Portfolio attracting USD1.5 billion in private sector commitments for financing infrastructure in developing countries with an emphasis on building on a modern-day "Silk Road."<sup>111</sup> The Silk Road project is part of China's Belt Road Initiative (BRI), which aims at investing and fostering collaboration in Southeast Asia, Oceania, and North Africa through the South China Sea, the South Pacific Ocean, and the wider Indian Ocean area. As of July 2018, more than 100 countries and organizations have signed cooperation agreements under the BRI and have generated over USD5 trillion in trade for China, with China's investments reaching USD80 billion.<sup>112</sup>

The potential for transforming the face of East Asia's seas along the Silk Road is massive, equally so the imperative for guiding this investment and development towards sustainability. PEMSEA, through its country partner, China, may look into Silk Road initiatives related to EAS for financing and other collaborative projects that fosters sustainable regional connectivity.

It is also expected that a myriad of innovative financial products will continue to develop and emerge in the region's capital markets as a result of the SDGs and the Paris Agreement. Examples include the China Green Bond Market, which raised USD37.1 billion as of 2017 to support the country's environmental programs, which now also constitutes about 33% of all global green bond issuances.<sup>113</sup> Another example is the World Bank's upcoming Sustainable Development Bond, which aims to raise at least USD3 billion from investors to highlight support for SDGs that address water and sanitation under SDG6 and marine protection under SDG14, and to resource the World Bank's Blue Economy portfolio.<sup>114</sup>

The impact investment ecosystem in East Asia is also fast becoming an emerging platform to source deals and deploy financing towards addressing environmental and social issues across the region, with a particular pull towards solutions that interface between conservation and job creation, or capacity building with market access. Cambodia is seeing serious engagement by impact investors for the USD360 billion investment potential to harness patient capital as a means to leapfrog its energy and manufacturing sectors in ways that avoid traditional environmental and social costs.<sup>115</sup>

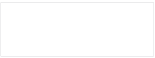
The push for a blue economy is also expected to come from East Asia's growing customer base. In Southeast Asia, local and regional companies are experiencing growth of 13 to 23% compared to the five percent growth seen by their multinational counterparts, noting that consumers are now showing favor towards how local companies are enhancing their brand values, through social and environmental contributions.<sup>116</sup> This rise of the "conscientious consumer" is expected to become a major market force that will compel supply chains to take on more sustainable strategies, be more transparent on company practices, and generate a positive impact on the environment and communities.<sup>117</sup> There is increasing interest among consumers in certifications, particularly for key commodities like seafood, packaging, and fashion, associating these with more ethical and healthier lifestyles that promote environmental protection.<sup>118</sup> Businesses have since started to respond to such trends by participating in voluntary certification schemes or developing corporate policies that incentivize their suppliers to adhere to practices promoting sustainability.<sup>119</sup> This is also in line with circular economy (CE) strategies growing in prominence across a number of industries, with principles such as design thinking, systems thinking, product life extension, and recycling design gaining more traction as compelling approaches to capturing new value and innovating business models.<sup>120</sup> To provide authoritative guidance to organizations seeking to implement CE, the British Standards Institution (BSI) developed the first circular economy standard "BS 8001:2017 Framework" for implementing the principles of the circular economy in organizations, aligning CE strategies with established business routines at the organizational level.<sup>121</sup>

## SPOTLIGHT

### GOVERNMENT AND PRIVATE SECTOR DRIVE SUSTAINABLE SEAFOOD TRADE AND INNOVATION IN THE EAS

The sustainable seafood trade, alongside protocols for catch documentation and traceability (CDT), has started through emerging policy regimes across East Asia. Indonesia, the Philippines, and Vietnam, in their capacity as the region's largest fish exporting countries, are increasingly adopting CDT mechanisms at local and national levels, including systems that detect IUU fishing, ensure food safety, promote fair labor practices, and facilitate proper seafood labelling for both domestic and export markets.<sup>122</sup> China, with its growing concern for food safety, is also pushing demand for premium and certified seafood and related marine products. As this trend picks up in the region, major players in East Asia's fishing industry are also introducing improved controls across their supply chains.

Thai Union, one of the largest seafood companies in the world, is currently partnering with technology company Fishcoin.<sup>123</sup> Fishcoin created "mFish," a mobile platform powered by blockchain technology that allows producers to digitally record their harvest for the purpose of traceability and fisheries management and provide market and weather information which, currently has 7,000 users.<sup>124</sup> This makes seafood traceability possible for the 20,000 shrimp farms ranging from small to large producers in Thailand and digitizes the once complicated and manual supply chain of the industry.<sup>125</sup> These records will become immutable, reliable, and easily accessible through the application, giving conscientious consumers and chefs all over the world the seafood traceability that they desire for the products they consume.<sup>126</sup>



This transition from business-as-usual and the traditional corporate social responsibility approach towards a more inclusive, responsible, and shared value approach is now driving new patterns of business practices that are likely to influence how new products and services will engender sustainability as a competitive advantage within post-2020 markets.

Organizations are encouraged to collaborate with the private sector towards de-risking, crowding-in, and scaling investments into the SDGs and a blue economy. There is a need to develop new and fresh approaches towards tapping East Asia's entrepreneurial class, including their talent and networks, towards creatively addressing the region's largest development challenges. Practical roadmaps towards increasing awareness and fostering the principles for a blue economy across East Asia must be developed to inform the growth of the region's business sector in a way that is resilient and responsive to the needs of East Asia's oceans and coasts. The World Wide Fund for Nature's Principles for Sustainable Blue Economy<sup>127</sup> and the European Commission's Declaration of the Sustainable Blue Finance Principles<sup>128</sup> offer examples of possible approaches for the region to consider in this regard.

## V. PEMSEA's Post-2020 Strategy: Responding to Regional Trends and Achieving Self-Sufficiency

The seas of East Asia face a very dynamic future. The oceans and coasts of the region will be subject to diverse challenges and opportunities, as highlighted by the above trends, that are expected to influence a new generation of policies and innovations across constantly shifting socio-economic landscapes. PEMSEA is no stranger to such change. Having actively pursued ICM over the last 25 years as a core platform to steer coastal governance and partnerships for East Asia, PEMSEA has a solid foundation and track record of working closely with its country and non-country partners to navigate new waters to influence coastal policy and planning, to scale ICM implementation and to share lessons learned and best practices.

The SDS-SEA and its associated Implementation Plan represent an essential foundation of commitment by PEMSEA partners and a framework for guiding action on priority governance and management programs—effectively providing the backbone for PEMSEA's Post-2020 Strategy. Research on relevant post-2020 trends for this report found that the priority management programs under the SDS-SEA Implementation Plan 2018–2020, including climate change, biodiversity conservation, pollution reduction, blue economy and governance, position the SDS-SEA and PEMSEA well to address the most important issues of a post-2020 world.

PEMSEA established the PEMSEA Resource Facility (**PRF**) to provide secretariat and technical services to support SDS-SEA implementation by its partners. As the organization looks to the future with a desire to be more responsive to the changing realities and priorities in the region, PEMSEA seeks to calibrate its course both internally and externally to sustainably provide value for its key stakeholders into the long-term.

The PEMSEA Resource Facility (PRF) is the coordinating body working with PEMSEA's country and non-country partners to promote the regional vision of healthy oceans, peoples and economies. The PRF provides secretariat and technical services to support the implementation of the shared SDS-SEA. Specifically, Secretariat Services oversees the implementation of EAS Partnership Council decisions, the organization of the EAS Congress, and monitoring and reporting. Technical Services deliver and mobilize policy and technical advice, capacity building and technical support for sustainable coastal and ocean governance. An Executive Director heads the PRF, overseeing the coordination of services. Voluntary contributions from the region's partners are used to fund Secretariat Services, while Technical Services augment funds from donor funded projects and programmes.



To this end, PEMSEA has identified a Post-2020 Strategy with the following strategic objectives:

- a) Build strong expertise and brand awareness centered on future proofing the seas of East Asia, to further raise its credibility as a consistent provider of solutions for sustainable seas and blue economy development
- b) Enhance alignment and partnerships with PEMSEA's network of stakeholders
- c) Achieve a diverse and sustainable mix of funding streams to implement the SDS-SEA and support PRF to be self-sustaining.

These objectives cover all three key areas of ocean governance, technology and private sector engagement and finance identified earlier in the trends report.

The following section will outline how PEMSEA can chart its course under this strategy and how it intends to position itself for sustainability through a range of actions, to maximize opportunities for its partners to effectively collaborate post-2020. These recommendations build and expand upon PEMSEA projects, programs and activities already in place—some still being developed, others firmly established, including:

- Current delivery of Technical Services
- Platforms for Knowledge Management, including the Seas of East Asia Knowledge Bank and an extensive collection of publications on coastal and ocean governance and integrated coastal management
- Ongoing national and regional training workshops on a variety of topics
- Internships, fellowships and training-of-trainer programs
- Certifications for ICM Systems, ICM Professionals and Port Safety and Environmental Management
- Regular convenings of government bodies and other partners, including the EAS Congress, Ministerial Forum and EAS Partnership Council Meetings
- PEMSEA Non-Country Partners, a network of regional and global scientific institutions, industry associations and development programs
- PEMSEA Network of Local Governments
- PEMSEA Network of Learning Centers
- PEMSEA Network of Youth Leaders
- Local State of the Coasts reporting and indicators
- National State of Oceans and Coasts reports
- East Asia Ocean Investment Services

Leveraging the ability of PEMSEA to establish partnerships with key stakeholders, the following table identifies notable funders and countries in East Asia and how they are prioritizing issues along the trends and areas of cooperation<sup>129</sup> identified by this report.



Trends and Areas for Cooperation	Priority Issues	Notable Funders <sup>130</sup>	Countries <sup>131</sup>
<b>Climate change</b>	Adaptation(policy/governance)	GEF, UN, GCF, Asia Foundation, GIZ	Philippines, Indonesia, Cambodia, Thailand
	Adaptation(capacitybuilding)	GEF, GIZ, UN, WWF, CI, TNC	
	Mitigation (policy)	USAID, GIZ, World Bank, European Climate Foundation	Singapore, ROK, Taiwan, Japan, China
	Mitigation (investment/ technologies)	ADB, USAID, World Bank, IFC, Packard Foundation, Growald Family Fund, Sainsbury Charitable Trusts	Singapore, ROK, Taiwan, Japan, China
	Disaster resilience (capacity building)	GCF, GIZ, UNESCAP	Philippines, Indonesia, Cambodia, Thailand
	Disaster resilience(infrastructure development)	ADB, GCF, JICA	Philippines, Indonesia, Cambodia, Thailand, China
<b>Overexploitation of marine resources</b>	Anti-IUU (policy/governance, technology, capacitybuilding)	USAID, EU, Bloomberg Foundation, Rockefeller Foundation, Althelia Biofund, Hyatt Group, IHG, Google, Seafood Business for Ocean Stewardship (SeaBOS), BINGOs	Philippines, Indonesia, Thailand, Malaysia
	Conservation(policy/governance, technologies, capacitybuilding)	USAID, EU, WWF, CI, TNC, David and Lucille Packard Foundation, Paul Allen Family Foundation	Indonesia
	Small-scale fisheries	Walton Family Foundation, James Beard Foundation, WWF, CI, TNC, Virgin (Aqua-Spark)	Philippines, Indonesia, Malaysia, Thailand
	Ecosystems restoration, marine protected areas	USAID, GIZ, EU, Blue Action Fund	ASEAN, China
<b>Marine pollution</b>	Marine debris (all types)	EDF, Royal Caribbean, Seafood Business for Ocean Stewardship (SeaBOS), Think Beyond Plastics, Ellen MacArthur Foundation, Ghost Gear Initiative, USAID's Municipal Waste Recycling Program	China: A new policy on the discharge of pollutants.  Indonesia: National plan to manage marine plastics  Philippines: Draft legislation on banning single use plastics and ramping up coastal rehabilitation
<b>Ocean-based industry and trade/blue economy</b>	Trade and infrastructure: ocean and coastal-based power, transport infrastructure in rural areas, e-infrastructure	Li & Fung Trafigura Group Clean Cargo	Malaysia: Enhancing trade growth by strengthening the halal sector  Philippines: Optimizing infrastructure financing  China: Encouraging trade integration and FDI flows  Myanmar: FDI  Lao PDR: Exporting hydropower to regional partners

Trends and Areas for Cooperation	Priority Issues	Notable Funders <sup>130</sup>	Countries <sup>131</sup>
Ocean governance (outside those mentioned above)	Food security	ADB <sup>132</sup> , DFAT	Thailand: ICT skills to develop the digital economy
	Research and knowledge sharing platforms	UNESCAP, JICA, Asia Foundation, USAID	China: Unlocking synergies with the Belt and Road Initiative  Malaysia: Developing the ICT sector through additional public investment  Viet Nam: Building hard and soft ICT infrastructure
Private sector engagement and finance/blue economy (outside those mentioned above)	Scaling investment and finance supporting blue economy development	IFC; Goldman Sachs Foundation; CIF, GCF, GEF; World Bank; AVPN; institutional investors, <sup>133</sup> USAID, Swiss Agency for Development and Cooperation, World Bank	Indonesia: Green finance Philippines: FDI, alternative financing schemes, developing capital markets

While not an exhaustive list, the above table indicates and validates the various issue areas or levers upon which PEMSEA can harness the power of partnerships to demonstrate its unique value proposition for mobilizing and catalyzing collaborative solutions for the seas of East Asia, especially given its network of strong country and non-country partners as well as its 25 years of experience in implementing sustainable solutions in the region. Specifically, it is recommended that PEMSEA invest effort and resources towards honing its future ability to provide value along themes and issues where there is convergence between the trends and priorities of funders and countries, which in summary are:

Trends and Areas for Cooperation	Proposed PEMSEA Priority Issues
Climate Change	Mitigation (ocean-based investment and technologies, nature-based approaches, such as ecosystem restoration and rehabilitation, as well as cross-cutting policies that address women and youth)
Overexploitation of marine resources	Anti-IUU (policy/governance, technology, capacity building), effective management and restoration of key marine biodiversity areas
Marine Pollution	Nutrient pollution, marine debris (all types)
Ocean-Based Industry and Trade	Blue economy-focused trade and infrastructure including ocean and coastal based power, transport infrastructure in rural areas, e-infrastructure
Ocean Governance	Capacity building and dialogues (S2S/ICM and IRBM as key mechanisms)
Technology	Research and knowledge sharing platforms
Private Sector Engagement	Scaling investment and finance, blue economy approaches

The following recommendations represent a strengthening and expansion of the previous strategic course plotted by PEMSEA, updated in light of the findings of this report for the prospects of a post-2020 East Asian Seas. These recommendations must also be considered in the context of PEMSEA anticipating the conclusion of its GEF-funded SDS-SEA scaling up project, other projects coming online, as well as available staffing and resources.

### **Objective 1. Establish strong expertise and brand awareness centered on future proofing the seas of East Asia**

To maintain and enhance its position as a trusted and credible ‘go to’ intergovernmental organization on coastal and marine issues in the region, PEMSEA needs to bolster its expertise and brand awareness specifically towards supporting its partners in effectively managing risks and capitalizing on the opportunities presented by a post-2020 world. In this regard, PEMSEA will focus on two major thrusts: (1) strengthen PEMSEA’s position as a unique intergovernmental body aligned with the diverse challenges and opportunities facing the EAS; and (2) deepen PEMSEA’s expertise on key areas such as ocean governance, technology and private sector engagement to further raise its credibility as a consistent provider of solutions for sustainable seas.

#### **Objective 1. Thrust 1: Strengthen PEMSEA’s position as a unique intergovernmental body aligned with the diverse challenges and opportunities facing the EAS**

For 25 years, PEMSEA has actively worked with its partners to articulate and execute its vision of HOPE—Healthy Oceans, People, and Economies—by fostering and sustaining healthy and resilient oceans, coasts, communities and economies across the Seas of East Asia, through integrated management solutions and partnerships.

Over the course of the last decade, PEMSEA has, among others, developed an implementation plan for its SDS-SEA and organized trainings, conferences and dialogues to develop an enabling environment, share lessons and good practices and build institutional capacity on integrated coastal management planning and policy making, which altogether have resulted in strengthening ocean and coastal governance across the region as demonstrated through the widespread development of national policies adopting ICM frameworks and the scaling up of ICM implementation across multiple sectors.<sup>134</sup> With the universal adoption of the UN SDGs, PEMSEA’s SDS-SEA, as well as the various national and local ICM programs in the region, is well-positioned to be anchors for guiding the attainment of multiple SDGs that relate to oceans and coasts.

Moving into a post-2020 world, PEMSEA intends to strengthen its position as the premier intergovernmental body for East Asia with the unique ability to convene, facilitate and catalyze effective dialogue on key issues, including climate change, fisheries health, marine pollution and ocean-based industry and trade as they relate to the future of the region’s oceans and coasts. One important lens for PEMSEA to apply across the various actions outlined below is blue economy development, where there are clearly huge restoration challenges, but also sizeable blue economy opportunities. Here, too, the SDS-SEA serves as a foundational framework for guiding and driving blue economy development in the region.

#### Activity 1.1.1. Set clear policy agenda and facilitate tailored dialogues

Working with its partners, PEMSEA will develop a clear policy agenda centered on the major trends identified above linked to the SDS-SEA Implementation Plan (climate change, marine pollution, fisheries health, ocean-based industry and trade), which will be treated as priority discussion points and areas for collaboration. Based on this agenda, PEMSEA can facilitate tailored dialogue on best practices, similar to how the Ocean Roundtable convened during the 2018 EAS Partnership Council meeting was conducted with its country, non-country and other partners. Similar dialogues can be convened across other events and meetings in the region, such as Xiamen World Ocean Week, LME Learn, PNLG Forum and EAS Congress, and other global events, such as the bi-annual IW Learn Conference or Sustainable Ocean Summit. The policy agenda will be reviewed yearly and, if necessary, PEMSEA will publish policy notes and recommendations. This is also in line with the second thrust of developing a priority research and development (R&D) agenda where PEMSEA, through its experts, may encounter new research, trends, and laws or regulations that must be incorporated in its policy agenda.

These dialogues shall involve stakeholders from the international, national, and local levels, and will actively engage and consult communities, which PEMSEA has always advocated as part of its ICM process. This will also contribute to knowledge sharing through PEMSEA's Knowledge Management Services and Seas of East Asia Knowledge Bank.

#### Activity 1.1.2. Develop dedicated policy working groups and initiatives with country and non-country partners

PEMSEA will develop dedicated policy working groups with country and non-country partners on specific trends and solution-oriented topics with significant interest from PEMSEA partners. Specifically, the PRF can engage with policy think tanks among its non-country partners, such as KMI and OPRI, to convene working groups around priority issues suited to those organizations. If sufficient interest and momentum exist, PEMSEA and the partners can develop dedicated policy initiatives where particular need for external collaboration is identified and deemed valuable to PEMSEA. The working groups will increase interaction with these partners to share lessons and develop collective policy action agendas. The development of specific policy initiatives would facilitate the development of shared solutions, partnerships and joint fundraising (described in Thrust 2). Such a model has proven successful with various other similar platforms most notably the World Business Council for Sustainable Development, World Resources Institute, the Inclusive Business Hub and others. There is a gap on coasts and oceans in the East Asian region that PEMSEA could fill in collaboration with select non-country partners

#### Activity 1.1.3. Practical institution building with its country and non-country partners

PEMSEA will work with its country and non-country partners to enhance its work on practical institution building, such as support for training key decision-makers, tracking and monitoring of key developments on priority issues, and providing advice on the legal, scientific and socio-economic dimensions of deepening engagement for priority issues to do with oceans and coasts in East Asia. The PRF can review the agreements and arrangements with its non-country partners and develop a general partnership guide, providing recommendations for ensuring

that partnerships are operationalized into concrete, functional partnership activities. The PRF can leverage its existing capability in training, technical service delivery and research and library management.

PEMSEA may aim to increase the number of its country and non-country partners, including partnership with corporations and non-government organizations, to expand its reach and develop and organize fellowship events for all partners. Here PEMSEA also has an important role to play in the regional LME framework, where it can strengthen its inter-LME coordination role for activities in the defined LMEs in the region—the South China Sea, Indonesian Sea, Sulu-Celebes Sea, Gulf of Thailand, East China Sea and Yellow Sea.

Activity 1.1.4. Conduct targeted marketing and brand awareness campaigns on major trends

Finally, PEMSEA will embark on more targeted marketing and brand awareness campaigns centered on the abovementioned policy agenda linked to the major trends, leveraging new technologies and communication approaches to effectively reach traditional and non-traditional partners and increase opportunities for collaboration. This finding and recommendation echoes previous findings on the importance of PEMSEA raising its visibility in the region, enhanced by a focus on the trends identified in this report and the other thrusts discussed here.

**Objective 1. Thrust 2: Deepen PEMSEA's expertise on ocean governance, technology and private sector engagement to become a leading provider of solutions for sustainable seas**

Managing East Asia's highly pressured coastal and marine ecosystems has become extremely complex over the years. Overlaid with the trends previously discussed, one only has to consider the multiple interrelated factors of environmental, socio-economic, and legal dimensions influencing decision-making in the region to quickly conclude that holistic, yet practical solutions are required to ensure effective and sustainable outcomes. Furthermore, it emerged through numerous conversations between PEMSEA and its partners and stakeholders that tried and tested and innovative solutions that blend ocean governance, technologies, and private sector engagement will be needed to catalyze lasting and impactful outcomes for the East Asia Seas.

In keeping with its mission to serve as a leading provider of solutions for sustainable seas, PEMSEA has taken concrete steps over the last decade to distill ICM into a set of services that can be tailored to the dynamic needs of the region. These fall under the areas of:

- Advisory and Project Services
- Knowledge Services
- Certification Services
- Facilitation and Secretariat Services
- Investment Services

As the organization looks to a complex future ahead, it recognizes the need to continually enhance and increase the sophistication of its expertise and services. PEMSEA intends to raise its profile and ability as a consistent provider of solution for sustainable seas by focusing on three core activities.

#### Activity 1.2.1. Develop a priority research and development (R&D) agenda

First, PEMSEA will establish a priority R&D agenda through the Technical Sessions of the Partnership Council as guided by its partners, both country and non-country, and considering the abovementioned trends and opportunity areas. Similar to the policy agenda, the priority R&D agenda will be developed by identifying key topics based on the trends (climate change, marine pollution, fisheries health, ocean-based industry and trade) and areas for collaboration (ocean governance, technology and private sector engagement) where PEMSEA will focus its competency building, expertise development and service delivery. The R&D agenda will be grounded in the needs of PEMSEA's country and local government unit partners (LGUs), as well as in the interests of external partners and potential clients, to ensure sufficient buy-in and resources to implement the agenda. A focused R&D agenda will ground PEMSEA services around priority issues that are relevant to its partners and potential clients and will be reviewed, evaluated, and updated on an annual basis based on the latest scientific research.

The PNLC can be consulted to help develop the R&D agenda. Specifically, the EAS Congress PNLC session can provide guidance while the technical session at the EAS Partnership Council Meeting and the PNLC Forum can be used to validate the agenda annually. This R&D agenda can also be informed by learning from PEMSEA's delivery of its technical services and feedback to continually refine and improve the service offering.

#### Activity 1.2.2. Build a network of experts based on the trends and opportunity areas

Building off existing expert networks, PEMSEA will invest in the recruitment and engagement of thematic experts based on the R&D agenda to form a larger network with expertise in the key trends and experience in the collaboration areas that can be mobilized to offer solutions and services. PEMSEA will explore different approaches to recruit and engage experts, including leveraging the existing ICM Learning Centers, offering experts visiting fellowships, sourcing experts through non-country partners and developing new partnerships to leverage experts in other institutions, including the United Nations, which recently proclaimed 2021-2030 to be the Decade of Ocean Science for Sustainable Development. PEMSEA can tap national and international organizations to work at the science-policy interface, collecting and harnessing planned scientific strategy at the global level to drive policy decisions.

PEMSEA can build on the database of experts from the former RTF and NTF, which includes a now somewhat dated, but nonetheless important list of experts that can be refreshed and re-engaged. This work can also extend and build on PEMSEA's previous fellowship program

#### Activity 1.2.3. Publish regular thought leadership pieces

To raise awareness on its expertise in these new areas, PEMSEA will publish thought leadership pieces on the priority R&D agenda topics regularly across relevant scientific, policy and business platforms. PEMSEA will co-author, publish and promote these thought pieces with the visiting fellows and/or partner experts to leverage their knowledge, networks and communication platforms. These knowledge products generated can range from short online articles, which can be promoted through social media and support building PEMSEA's visibility, to more in-depth

technical publications that can be housed and promoted on the Seas of East Asia Knowledge Bank.

## **Objective 2. Enhance alignment and partnerships with PEMSEA's network of stakeholders**

PEMSEA recognizes that next-generation partnerships will be key to its future success. Having acted as a strong partner to multiple organizations around the world over the years as a means to advance its vision for ICM, PEMSEA looks to ramp up its ability to harness partnerships as a means to boost its value and self-sufficiency through two major thrusts: (1) establish anchor partnerships on selected issues across stakeholder segments; and (2) develop its partnership building capacity.

### **Objective 2. Thrust 1: Establish Anchor Partnerships on Selected Issues across Stakeholder Segments**

A survey of the various priority policies and programs of relevant countries and funders in the region reveals a convergence of priority issues found across the core trends and areas of collaboration previously identified, which can inform the establishment of “anchor partnerships”.

#### **Activity 2.1.1. Develop anchor partnerships**

PEMSEA will pursue the establishment of “anchor partnerships”—high-profile partnerships with key players, whose operations and funding aligns with PEMSEA’s policy and/or R&D agenda and with whom PEMSEA can leverage assets and resources to achieve enhanced impact. These high-profile partnerships in key collaboration areas, such as PEMSEA’s partnership with Circular Capital to support blended finance approaches to marine plastic pollution, will help PEMSEA to: 1) develop expertise in emerging innovative partnership, technology and financing approaches; 2) refine existing services and develop new services; and 3) generate new partnership and funding opportunities through increased brand recognition and referrals. PEMSEA can also use these anchor partnerships to offer additional services to other stakeholders involved in the initiative, for example the organization could support Circulate Capital’s corporate and NGO partners to convene and implement local plastic reduction policies and solutions with PEMSEA’s national and local partners. This could be accomplished through a number of potential convenings, including ongoing national and regional training workshops, the EAS Congress, and perhaps even offering technical services or certification services to those partners.

Initially, for these anchor partnerships, PEMSEA will focus its role on strengthening engagements with national and local governments, bringing various stakeholders together and sharing experiences and best practices across the region. PEMSEA will target partnerships with organizations and companies with complementary experience and networks in innovative finance and investment, private sector engagement and emerging technologies in areas prioritized in the policy and R&D agenda, building on the national State of Oceans and Coasts reports or the partnerships being developed under the East Asia Ocean Investment Services, for instance. These new partners can provide thought leadership, resources, and expertise to drive market solutions and investment vehicles, as well as the seed funding and financial incentives to support new



business models to address issues like marine pollution. As these anchor partnerships develop, PEMSEA can explore providing additional services to test, adapt, and scale approaches and business models and solutions developed in one country — like reducing plastic pollution in Indonesia, which are customized to local market and LGU contexts — to organization partners.

## **Objective 2. Thrust 2: Develop Partnership Building Expertise and Capacity**

Leveraging PEMSEA's strength in its partnership with governments, PEMSEA will benefit greatly from deepening its relationships with its current partners, and establishing an expanded reach to other potential partners, providing them with an avenue for networking and collaboration.

### **Activity 2.2.1. Establish a Partnership Unit**

Based on priorities determined from recommendations by PEMSEA partners and available resources, the PRF may consider ramping up the resources behind its partnership-building activities. A new partnership approach will require increased in-house capacity at the PRF to build, implement and monitor partnerships. While the PRF has a longstanding position for Planning and Partnership Development, this has traditionally been a big role for a single individual. Given its core focus on partnership, the PRF could benefit from a dedicated and systematic focus on partnership development.

As a way of transition, the PRF may start by reviewing and strengthening its relationship with current country partners, connecting with previous partners, such as Malaysia and Thailand, and touching base with its current non-country partners. As conversations move forward, the new Partnership Unit may take over and formally establish relationships and engagements with said entities.

The Partnership Resource Specialist will work to ensure that the specific requirements of partners are addressed, developed, and monitored, allowing for high impact projects and focus on mutual understanding and commitment to implement shared goals.

## **Objective 3. Achieve a diversity and sustainability of funding streams**

PEMSEA's ambition to continue to drive discourse and lead the promotion of sustainable solutions for East Asia's oceans and coasts relies on its ability to secure sufficient resources to implement its plans and programs. As such, moving into and beyond 2020, the organization will be focusing on two main thrusts to achieve a more diverse and sustainable mix of funding for its future: (1) enhance the implementation of current self-sufficiency approaches, and (2) innovate new approaches for self-sufficiency.

### **Objective 3. Thrust 1: Enhance the implementation of current approaches for self-sufficiency**

As described in the Third Party Assessment,<sup>135</sup> over the last few years PEMSEA has secured external resources to sustain its operations through the management and implementation of regional



projects through strategic partners like the United Nations Development Programme (UNDP), among others. This track record for effective project development, management and execution should not be underestimated as it is widely in demand in the development industry and sectors with high risk aversity and preference for execution excellence.

#### Activity 3.1.1. Invest in client acquisition and business development

Building on its experience of managing large regional projects, PEMSEA should consider investing in client acquisition and business development targeting existing clients/partners as well as new clients/partners with similar requirements and interests in PEMSEA's unique brand of expertise and services. Specifically, PEMSEA will focus on targeting current clients with new services, and/or targeting similar clients with existing services. In line with this, PEMSEA will explore the recruitment of dedicated business development specialist(s) (as indicated in the previous section) and increase the organization's participation in key global and regional events to actively market its agenda, expertise, and approach to next generation ocean partnerships. This role would work in close alignment with the targeted marketing and brand awareness described under Objective 1.

#### Differences between Partnership, Business Development and Joint Fundraising Activities

Funding Streams	Definition
<b>Partnership</b>	Formalizing tie-ups and collaborations with one or multiple organizations to advance a common agenda. In some cases, resource contributions can be shared, or in some, one partner can shoulder the majority of the costs while the other implements on their behalf.
<b>Business Development</b>	Engaging with organizations with the intent of selling PEMSEA's products and services to them
<b>Joint Fundraising Activities</b>	Engaging with like-minded or complementary organizations with the intent of jointly selling PEMSEA and the organization's products and services to others

#### Activity 3.1.2. Establish a mechanism for sustained partner contributions

Financial contributions by PEMSEA Partner Countries to support the PRF play a critical role in both enabling the PRF to deliver core services and assistance to PEMSEA partners, but also in demonstrating the political commitment of the partners. Countries that receive benefits from PEMSEA services need to make their fair contribution. This minimum amount of financial support is crucial as a recurrent source of core funding. This recommendation is nothing new and has been raised in the annual PC meetings since PEMSEA's creation.

In line with ongoing discussions, PEMSEA will establish a formal plan leading to the adoption of partner contributions that includes a clear timeline and procedure in close consultation with Partner Countries. As PEMSEA introduces additional services to its partners, the organization will look to these partners for appropriate support to cover its basic operations (e.g., secretariat

services for the PRF and EAS Congress) in the near-term and advanced operations (e.g., managing policy working groups, a priority R&D agenda, and a partnership unit), in the mid- to long-term so that PEMSEA can sustainably fulfill its mandate into the future.

### Objective 3. Thrust 2: Develop New and Innovative Self-Sufficiency Approaches and Expand Current Initiatives

On top of enhancing the implementation of current modes for self-sufficiency, PEMSEA will pursue new and innovative approaches towards securing funding and resources to complement its base.

#### Activity 3.2.1. Joint fundraising activities

PEMSEA, through its leadership team, and the prospective partnership/business development specialist, can explore joint fundraising and business development activities that can include the application for grants or the development of new partnerships and platforms that leverage the organization's expertise and services. For joint fundraising activities, PEMSEA can use its credibility, networks, and experience to explore partnerships to secure projects and funding in innovative areas (technology, blended finance, etc.) where the organization has less expertise or experience, and/or when the challenge is complex and requires a consortium or collaboration to address effectively. For joint fundraising activities, PEMSEA will explore signing agreements with partners to combine efforts and share costs to pursue new business opportunities with new clients.

For joint activities, PEMSEA can explore different roles in coordination with its member countries and partners, including implementer, convener/secretariat, technical partner, or in some cases a fund/grant manager.

Positioning	Pros	Cons
<b>Implementer.</b> To manage and implement project activities.	<ul style="list-style-type: none"> <li>Existing experience managing projects</li> <li>Longer project timeframes and funding cycles</li> </ul>	<ul style="list-style-type: none"> <li>Staffing and resource intensive</li> <li>Highly dependent on PEMSEA's ability to negotiate and be awarded the role</li> </ul>
<b>Convener.</b> Bring together multiple actors and partners around a specific idea, issue or activity.	<ul style="list-style-type: none"> <li>Core role of PEMSEA, easily transferable, limited need for staffing and upfront resources</li> </ul>	<ul style="list-style-type: none"> <li>Less funding for this role</li> <li>Competition with other regional organizations and NGOs.</li> </ul>
<b>Technical Partner.</b> Provide expertise, research and action to lead or organize other around an issue or solution.	<ul style="list-style-type: none"> <li>Can build unique and non-transferable expertise and skills.</li> </ul>	<ul style="list-style-type: none"> <li>Requires deep network of experts to execute to resource</li> <li>Competition in specific technical areas with some current partners, and with other organizations</li> </ul>
<b>Fund/grant manager.</b> To provide management, supervision, leadership, development, review and/or implementation of the grant, its policies, and activities, throughout the grant life cycle.	<ul style="list-style-type: none"> <li>Longer project timeframes and funding cycles</li> </ul>	<ul style="list-style-type: none"> <li>More overhead and staffing requirements</li> <li>Highly dependent on PEMSEA's ability to negotiate and be awarded the role</li> </ul>

### Activity 3.2.2. Mobilize a spin-off entity

PEMSEA will also explore and prototype possible approaches to develop a spin-off entity that will manage more business-oriented or commercially sourced engagements and/or establish a more dedicated service facility focused on offering a specific range of services built from the organization's expertise. This could include prototyping a "think-tank" focused on designing, capital raising, and deploying innovative financing for ocean-based innovations. Upon success of such a prototype, PEMSEA could consider developing a new partnership with appropriate entities to manage the spin-off, subject to legal and financial requirements. This could be applied to a spin-off facility for certification services, a training academy (e.g. East Asia Seas Academy) or intensive private sector partnership brokering and management service for interested PEMSEA stakeholders. Such a spin-off could also be used to support activities already being considered for the East Asia Ocean Investment Facility to allow it to generate profit and hold equity from investments.

The following spin-off entities for the consideration of the PRF may be established as separate or combined units. For example, the EAS Policy Think Tank may be combined with the EAS Academy as a research and educational arm.

Type of Entity	Pros	Cons
<b>EAS Policy Think Tank</b> <ul style="list-style-type: none"> <li>Perform specialized research and advocacy on the identified Post-2020 trends for Oceans and Coasts</li> <li>Develop expertise in green blended finance and work with institutional investors to find funding for possible projects</li> <li>May be combined with the EAS Academy</li> </ul>	<ul style="list-style-type: none"> <li>Demand for policy studies and capacity building on deep-dives for big post-2020 trends is growing</li> <li>Specialized training of personnel on private sector engagement and sustainable finance addresses a major gap in skills and expertise for the ocean and coastal sector</li> <li>Combining with EAS Academy can be beneficial as PEMSEA may tap partner experts as trainers and the participants as research associates</li> </ul>	<ul style="list-style-type: none"> <li>Highly specialized training for personnel and recruitment of experts may be expensive in the short run</li> <li>Take time to be recognized as a 'legitimate' think-tank</li> </ul>
<b>Certification Services Facility</b> <ul style="list-style-type: none"> <li>Develop benchmarking modules and assessment programmes for ocean-based issues</li> <li>Showcase its existing pilot certifications to market benefits to target participants</li> <li>Market the certification to government agencies for it to be recognized as the definitive authority for the offered certifications</li> </ul>	<ul style="list-style-type: none"> <li>PEMSEA already has a set of modules and programmes for two certifications – ICM and Ports – to start with</li> </ul>	<ul style="list-style-type: none"> <li>Need to build critical mass of certified entities or persons for certification to be of high value</li> </ul>
<b>East Asia Seas Academy</b> <ul style="list-style-type: none"> <li>Develop modules and programmes for oceans-based related skills</li> </ul>	<ul style="list-style-type: none"> <li>PEMSEA already has a deep knowledge base and recognized credibility to "train the trainers" on key oceans and coasts issues</li> </ul>	<ul style="list-style-type: none"> <li>Main competition will be universities and NGOs that offer the same type of trainings</li> <li>May need to refurbish facilities to address educational or training needs for classroom type events</li> </ul>
<b>Private Sector Partnership Facility</b> <ul style="list-style-type: none"> <li>Offer Advisory Services on Trends and Areas of Cooperation</li> <li>Offer Project Development Services</li> <li>Develop Business Network with packages</li> </ul>	<ul style="list-style-type: none"> <li>PEMSEA can leverage the strength of its existing country partners</li> <li>PEMSEA has learned from its experience of managing the PEMSEA Sustainable Business Network</li> </ul>	<ul style="list-style-type: none"> <li>How to differentiate or add value to other PSP facilities</li> </ul>

## Summary of the Post-2020 Strategy

	Thrusts	Actions
<b>POST-2020 STRATEGIC OBJECTIVE 1</b> Establish strong expertise and brand awareness centered on future proofing the seas of East Asia	Strengthen PEMSEA's position as a unique intergovernmental body aligned with the diverse challenges and opportunities facing the EAS	<ul style="list-style-type: none"> <li>Set Clear Policy Agenda</li> <li>Facilitate Tailored Dialogues</li> <li>Develop Policy Initiatives and Working Groups</li> <li>Institution Building</li> <li>Conduct Targeted Marketing</li> </ul>
	Deepen PEMSEA's expertise on key areas such as ocean governance, technology and private sector engagement to become a leading provider of solutions for sustainable seas	<ul style="list-style-type: none"> <li>Establish a priority R&amp;D agenda</li> <li>Invest in expertise for oceans governance, technology, and private sector engagement</li> <li>Publish regular thought leadership</li> </ul>
<b>POST-2020 STRATEGIC OBJECTIVE 2</b> Enhance alignment and partnerships with PEMSEA's network of stakeholders	Establish anchor partnerships on selected priority issues across stakeholder segments	<ul style="list-style-type: none"> <li>Establish at least one self-sustaining anchor partnership annually with a range of multilateral, bilateral, government or private partners</li> </ul>
	Develop partnership building capacity	<ul style="list-style-type: none"> <li>Establish a Partnership Unit</li> </ul>
<b>POST-2020 STRATEGIC OBJECTIVE 3</b> Achieve a diversity and sustainability of funding streams	Enhance the implementation of current approaches for self-sufficiency	<ul style="list-style-type: none"> <li>Invest in client acquisition and strategic business development</li> <li>Establish a timeline and work program towards mandatory partner contributions</li> </ul>
	Innovate new approaches for self-sufficiency	<ul style="list-style-type: none"> <li>Conduct joint fundraising activities</li> <li>Explore, prototype, and establish, as appropriate, a spin-off business entity to conduct dedicated services</li> </ul>

## PRIORITIZING ACTIONS FOR THE NEXT FIVE YEARS

Pending further refinements and approval of the approaches presented in this document, activities described under this strategy can be prioritized and paced over a five-year timeframe considering resource requirements and the availability of funds.

PRIORITIZING ACTIONS FOR THE NEXT 5 YEARS	Year 0: 2019-2020				Year 1: 2020-2021				Year 2: 2021-2022				Year 3: 2022-2023				Year 4: 2023-2024				Year 5: 2024-2025			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>OBJECTIVE 1: Establish strong expertise and brand awareness centered on future proofing the seas of East Asia.</b>																								
<b>Objective 1. Thrust 1: Strengthen PEMSEA's position as a unique intergovernmental body aligned with the diverse challenges and opportunities facing the EAS</b>																								
Create Policy Working Group that would develop and finalize the Policy Agenda																								
Develop policy support Initiatives (One major activity per year)																								
<b>Objective 1. Thrust 2: Deepen PEMSEA's expertise on ocean governance, technology and private sector engagement to become a leading provider of solutions for sustainable seas</b>																								
Determine priority R&D Agenda																								
Implement R&D Agenda																								
Conduct marketing and brand awareness campaign, including:																								
Publish article/thought pieces <sup>1</sup>																								
Connect and establish PEMSEA Experts Network (Y2, Q1, formalize and announce development of R&D Agenda)																								
Create PEMSEA Fellowship (Every Q2)																								
<b>OBJECTIVE 2. Enhance alignment and partnerships with PEMSEA's network of stakeholders</b>																								
<b>Objective 2. Thrust 1: Establish Anchor Partnerships on Selected Issues across Stakeholder Segments</b>																								
Engage and close Anchor Partnership (start at least one by Y1 Q4)																								
Implement Anchor Partnership Projects																								
<b>Objective 2. Thrust 2: Develop Partnership Building Expertise and Capacity</b>																								
Establish a Partnership and Business Development Unit																								
<b>OBJECTIVE 3. Achieve a diversity and sustainability of funding streams</b>																								
<b>Objective 3. Thrust 1: Enhance the implementation of current approaches for self-sufficiency</b>																								
Activate partner contributions programme																								
Develop cost sharing agreement																								
<b>Objective 3. Thrust 2: Develop New Innovative Self-Sufficiency Approaches</b>																								
Develop fundraising agenda																								
Conduct joint fundraising activities																								
Implement fundraising activities																								
Develop spin-off facility of choice																								

<sup>1</sup> At least two for Year 1 and increasing in number per year.

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  - ASEAN Working Group on Chemicals and Waste (AWGCW)
  - ASEAN Working Group on Coastal and Marine Environment (AWGCME)
  - ASEAN Working Group on Environmental Education (AWGEE)
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