BLUE ECONOMY FOR BUSINESS IN EAST ASIA

TOWARDS AN INTEGRATED UNDERSTANDING OF BLUE ECONOMY

SUMMARY BRIEF

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VALUING COASTAL AND MARINE ECOSYSTEM SERVICES

Covering 7 million km^2 and 235,000 km of coastline, the seas of East Asia are some of the most ecologically and economically important sea areas in the world. The region is home to over one third of all coral reefs and mangroves and the highest levels of biodiversity for coral reef fish, mollusks, mangroves and seagrass species. These provide a rich array of services that directly and indirectly contribute to human survival and quality of life, supporting local coastal communities and their larger national economies, including:

- Food from wild-catch fisheries and aquaculture;
- Weather regulation and protection from natural hazards (e.g., storms and floods);
- Carbon sequestration by mangroves, seagrass beds and salt marshes;
- Energy from offshore oil, wind and waves;
- Shoreline stabilization and erosion control;
- Regulating and processing nutrients and waste in the environment;
- Formation of sand, soil and other sediments;
- Pharmaceutical and other biotechnology products;
- Trade through shipping and ports; and
- Tourism, recreation and spiritual value.

Oceanic environments are valued conservatively at US$2.5 trillion, with over 60 percent of the world's total gross national product coming from areas within 100 kilometers of the coastline. Coastal and marine industries comprise 15-20 percent of the GDP in some East Asian countries. For instance, the region produces 83 percent of the world's aquaculture products and over 32 million tons of annual fish catch and hosts 9 of the top 10 busiest container ports in the world. With a growing global population, mounting pressure on the existing resource base and increasing access to coastal and marine environments through technological advances, accelerated development and exploitation of coasts and oceans is a certainty.

Traditionally considered externalities in economic terms, the environmental impacts of these activities can cause a decline in ecosystem services and degradation of the natural capital that is the basis for economic activity. Mangrove forests have been reduced to 30-50 percent of their historical coverage and 88 percent of coral reefs in Southeast Asia are under threat. As of 2011, 90 percent of global fish stocks were overfished or fully fished and scientists predict a possible 40-60 percent decline in fish catches in some areas of the tropics due to climate change. Impacts from overfishing, coastal hypoxia and eutrophication, invasive aquatic species, coastal habitat loss and ocean acidification costs the global economy an estimated US$350 billion to US$940 billion every year. Most of the large cities at extreme risk from climate change are located in Asia, and by midcentury could face annual disaster losses in excess of US$19 billion.

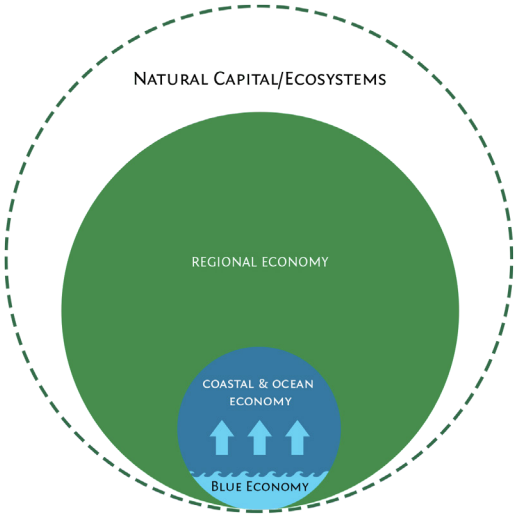
In a region so dependent on its seas, can economic growth in coastal and marine areas be sustained?

THE EMERGENCE OF BLUE ECONOMY

"Blue economy" has emerged as a significant potential driver of sustainable economic growth in East Asia, and the concept has struck a chord with a number of countries and international organizations, increasingly appearing in policy discussions, conferences, publications and agreements. After gaining prominance around the Rio+20 Conference in 2012, the concept of blue economy has been further developed by organizations including APEC, UNDP and FAO. In 2012, ten countries in East Asia expressed their interest in blue economy through the Changwon Declaration, "Toward an Ocean-based Blue Economy", recognizing that innovative partnerships with the business community and others are needed to achieve sustainable ecological and economic health.

While the discussion has remained largely the domain of government, the private sector is showing more interest in the potential that blue economy holds. Indeed, business will play a critical role as its development unfolds. The goal of this report is to illuminate what blue economy means for business and why it will be an important driver of economic growth and a strategic consideration for companies in East Asia in the coming years.

Beyond simply being a collection of coastal and marine industries, blue economy is the **set of environmentally and socially sustainable commercial activities, products, services and investments dependent on and impacting coastal and marine resources.** Activities that erode natural capital through degradation of ecosystem services are inherently not sustainable, and not "blue". Four key elements are present in coastal and marine economic activities that can be considered blue economy:



1. **Protects, restores and sustains healthy coastal and marine ecosystem services;**
2. **Generates sustainable, equitable economic benefit and inclusive growth;**
3. **Integrates approaches between multiple industries and government; and**
4. **Innovates, informed by the best available science.**

Coastal and marine areas support a wide variety of established industries and advancing technology is allowing us to access new resources through emerging industries, such as renewable energy, sea-based pharmaceuticals and seabed mining. Nine primary industries are identified as key for growing a blue economy in the region based on their dependence or impact on coastal and marine areas.

Fisheries and Aquaculture

The fisheries and aquaculture sector is critical for global food security and sustained economic development. East Asia is home to 8 of the top 15 marine capture fish producing countries in the world and by 2030 Asia will consume 70 percent of fish globally. It is estimated that wild fish production could rise by as much as 15 percent and profits by a factor of 2.5 if fisheries were managed sustainably.

Ports, Shipping and Marine Transport

90 percent of all goods in the world are transported via shipping, and 4 of the top 6 shipping economies in the world are in East Asia. Poor shipping practices can lead to degradation of coastal and marine areas from oil spills, dumping of wastes, release of toxic chemicals, transfer of invasive species and other impacts.

Tourism, Resorts and Coastal Development

In 2014, travel and tourism generated US$7.6 trillion—9.8 percent of total world GDP—and 80 percent of all tourism takes place in coastal areas. International tourism in the Asia-Pacific region has shown stronger growth than other parts of the world. Coastal tourism is highly dependent on environmental quality to attract visitors, but tourism development can introduce a host of environmental issues.

Oil and Gas

Asia's primary energy demand could rise by 40 percent by the end of the decade. The region is expected to be the primary global buyer of liquefied natural gas (LNG) in the coming decade, requiring substantial coastal infrastructure. Globally, offshore fields could account for 34 percent of worldwide crude oil production by 2025. While the oil and gas sector is poised for tremendous growth in the region, proper environmental management will be critical to maintain its ability to operate effectively.

Coastal Manufacturing and Heavy Industry

Manufacturing is often located near coasts, with shipping access to imported materials and export markets. In 2013, Asia accounted for 46.5 percent of all global manufacturing output. East Asia is home to the largest shipbuilding economies in the world. Manufacturing can have a number of impacts on coastal areas, including air pollution and discharge of toxic substances into the environment. Consumers are increasingly applying pressure on manufacturers through supply chains to improve environmental and social practices.

Seabed Mining

Demand for metals continues to increase as known reserves of certain minerals could run out in just a few decades. Seabed mining presents an appealing new source of mineral wealth, with companies from China, Japan, RO Korea and other countries actively exploring seabed mining in the seas of the Pacific. As a young industry, the extent of environmental damage from seabed mining activities is not fully understood.

Renewable Energy

As global energy demand continues to climb and industry searches for alternatives to traditional fossil fuels, exploitable marine-based renewable sources, including waves, tides, currents, thermal gradients, wind and biomass, hold the potential to meet all current global energy needs. China, Japan and RO Korea have set ambitious targets for developing additional offshore wind capacity and governments in the region are pushing for development of other forms of renewable marine energy.

Marine Biotechnology

The marine environment offers a new frontier of biological resources for developing a range of products from pharmaceuticals and chemicals to personal care products and environmental applications. Filing of patents related to marine organisms has seen an annual growth rate of 12 percent over the past 15 years and the demand for pharmaceuticals from marine species is anticipated to grow to US$8.6 billion by 2016. In a region with some of the highest marine biodiversity in the world, the prospects for East Asia seem especially attractive.

Marine Technology and Environmental Services

Companies providing marine technology and environmental services cover a wide range of activities including oil spill response, wastewater treatment, marine scientific services and information technology. The application of environmental services and technology is needed in the region to address persistent problems of pollution, deteriorating water quality and overfishing.

Companies in these industries are exposed to operational, regulatory, reputational, market and financial risks related to proper management of ecosystem services, and according to one study, the business value related to these risks could be as high as 70 percent of earnings (before interest, tax, depreciation and amortization). Across these industries, examples of potential business risks and opportunities include:

Risks:

- Increased operating costs to seafood companies from declines in fish stock productivity
- Vulnerability to fuel price volatility and pressure from large bulk shippers for fuel efficiency in the shipping industry
- Loss of tourism revenue from degradation of natural landscapes that attract tourists
- Disruption to business operations from environmental incidents in oil and gas operations
- Supply chain impacts or loss of social license to operate for a manufacturing company from inability to meet environmental and safety requirements
- Changes to cost structure from unanticipated regulatory requirements (e.g., carbon regulations)
- Vulnerability of coastal infrastructure to sea level rise, storm surges, etc.

Opportunities:

- Access to expanded and premium markets through enhanced brand for seafood companies
- License to operate from good relationship with governments and communities in the rapidly evolving seabed mining industry
- Innovation in marine technology and environmental services based on emerging sustainability trends
- New markets for low- to no-emission energy production, driven by greenhouse gas emission regulations and consumer preference
- Access to new sources of capital from socially and environmentally responsible investors
- Opportunity to collaborate across industries to develop lower risk, more cost-efficient practices

Conventional management approaches, which address challenges separately on a sector-by-sector basis, are typically not sufficient for solving complex problems in coastal and marine areas. Important linkages exist between industries. For example, aquaculture, if not properly zoned, can affect ship navigation routes; fisheries and tourism can both benefit from proper management of marine protected areas; and pollution from coastal development and manufacturing can damage tourism sites. Leading countries on coastal governance and blue economy demonstrate a fundamental need for integrated approaches.

Integrated coastal management (ICM) addresses the governance of human activities affecting the sustainable use of goods and services generated by coastal and marine ecosystems. Built on a foundation of science-based decision making and multisector stakeholder participation, ICM operationalizes ecosystems-based approaches through a systematic cycle and supporting tools, including marine spatial planning. Across 12 countries in East Asia, a total of 255 ICM-related policies have been developed and implemented. In Xiamen, China, one of PEMSEA's first ICM sites, every dollar invested in ICM has returned seven dollars in economic benefit to the city.

As ocean health continues to rise on the agenda with policymakers, developments such as the new UN Sustainable Development Goals, ASEAN economic integration, governance of activity in sea areas beyond national jurisdiction, innovative new financing mechanisms for coastal investment and the accelerating effects of climate change could have profound impacts on growth and investment in a blue economy. There is a significant need for private sector capital and expertise to scale up blue economy investments that consider environmental and social impacts and build the long-term ecological, social and economic health of coastal and marine ecosystems and communities.

WHAT'S NEXT FOR BLUE ECONOMY?

As a global leader in several coastal and marine industries, East Asia relies on a healthy ocean economy. But as the natural capital that industry depends on continues to erode, so too will the health of those industries. The only way to ensure the long-term sustainability of both ecosystems and the economy is by transitioning from an ocean economy to a blue economy.

Blue economy offers a mindset for managing business risks, improving decision making, generating new opportunities and collaborating across sectors. We have an opportunity to learn lessons from development of land-based resources. Can the blue economy offer more than simply doing less harm? Can it be something truly transformational, and sustainable? We believe that the success of integrated coastal management and similar efforts in the region over the past two decades demonstrates that it can.

This report was developed to help move us closer to an integrated understanding of blue economy and the opportunity it represents, and we invite you to join PEMSEA and other organizations, governments and companies as we work together to continue exploring how to build a blue economy in East Asia.

Discussion Questions:

1. What is your industry and company stake in building a blue economy?
2. What are the primary business risks and opportunities emerging for your industry and company related to a blue economy?
3. What are the priority partnership needs and opportunities between industries for building a blue economy?
4. How can the business community and government partner in building a blue economy?

To download the full report and references, please visit www.pemsea.org/our-work/blue-economy. For more information and to get involved with PEMSEA's blue economy work, please contact us at info@pemsea.org.

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