Oceans 2030

FINANCING THE BLUE ECONOMY FOR SUSTAINABLE DEVELOPMENT

WORLD BANK GROUP

BLUE ECONOMY DEVELOPMENT FRAMEWORK

Growing the Blue Economy to Combat Poverty and Accelerate Prosperity

The world counts numerous coastal and island countries with lower and lower-middle income levels, for whom oceans represent a significant jurisdictional area and a source of opportunity. In those countries, innovation and growth in the coastal, marine and maritime sectors could deliver food, energy, transport, among other products and services (see box below), and serve as a foundation for sustainable development. Diversifying countries' economies beyond land-based activities and along their coasts is critical to achieving the Sustainable Development Goals and delivering smart, sustainable and inclusive growth globally. In Europe for example, the blue economy represents roughly 5.4 million jobs and generates a gross added value of almost €500 billion a year.

Components of the Blue Economy			
Type of Activity	**Ocean Service**	**Industry**	**Drivers of Growth**
Harvest of living resources	Seafood	Fisheries	Food Security
		Aquaculture	Demand for Protein
	Marine biotechnology	Pharmaceuticals, chemicals	R&D for healthcare and industry
Extraction of non-living resources, generation of new resources	Minerals	Seabed mining	Demand for minerals
	Energy	Oil and gas	Demand for alternative energy sources
		Renewables	
	Fresh water	Desalination	Demand for fresh water
Commerce and trade in and around the oceans	Transport and trade	Shipping	Growth in seaborne trade; International regulations
		Port infrastructure and services	
	Tourism and recreation	Tourism	Growth of global tourism
		Coastal Development	Coastal urbanization
			Domestic regulations
Response to ocean health challenges	Ocean monitoring and surveillance	Technology and R&D	R&D in ocean technologies
	Carbon Sequestration	Blue Carbon	Growth in coastal and ocean protection and conservation activities
	Coastal Protection	Habitat protection and restoration	
	Waste Disposal	Assimilation of nutrients and wastes	

Additional growth of the blue economy is possible in a number of areas, especially: fisheries, aquaculture, mariculture, coastal tourism, marine biotechnology, and ocean energy. While some of these sectors will require little encouragement and additional governance, others need more and better planning to achieve their full potential and return more sustainable outcomes. Ambitious governance reform supported by the World Bank in Morocco for instance, helped the country develop its aquaculture sector to generate jobs, especially for women, in rural areas where employment prospects are challenging. Providing technical knowledge of marine ecosystems, legal certainty and security to attract private investment have been key success factors in that instance.

Significant contributions of marine and freshwater ecosystems include:

Food security, nutrition and health**:** Fish contributes over 16 percent of the animal protein consumed by the world's population and 6.5 percent of all protein consumed, with 1 billion people relying on this source of protein. Fish is also a particularly critical source of nutrition. Even in small quantities, provision of fish can be effective in addressing food and nutritional security among the poor and vulnerable populations around the globe.

Livelihoods**:** FAO estimates that fishers, fish farmers and those supplying services and goods to related industries assure the livelihoods of as many as 660–820 million people worldwide. In addition, women play a critical role in fishery supply chains – it is estimated that women account for 15 percent of people directly engaged in fisheries and up to 90 percent of jobs in secondary activities (particularly in fish processing, whether in the formal or informal sector). Oceans and coasts also form the foundation for extensive employment in tourism - one of the top five industries in most small island states.

Mitigation of climate change**:** Oceans constitute a major sink for anthropogenic emissions, absorbing 25 percent of the extra CO2 added to Earth's atmosphere by burning fossil fuels. 'Blue carbon' sinks like mangrove forests, sea grass beds and other vegetated ocean habitats are up to five times as effective as tropical forests at sequestering carbon.

Homes and shelter**:** Roughly 40 percent of the world's population lives within 100 kilometers of the coast. Healthy coastal ecosystems provide protection from natural hazards, coastal erosion and rising sea levels particularly in small island developing states (SIDS) and low-lying, exposed delta regions.

Sustainable economic growth**:** A large number of developing coastal and island nations depend on tourism and fisheries for a significant part of their gross domestic product and public revenues. Aquaculture is projected to continue to grow rapidly and if done sustainably, can serve as a major source of food and a cornerstone of the blue economy. Advances in seaweed production hold promise for replacing fishmeal and animal feeds with plant materials produced with less pollution. Tourism, and particularly nature-based tourism, also provides an important path towards the sustainable development of marine and coastal ecosystems. Coastal tourism is a key component of small island state economies. The value of nature-based tourism is expected to increase over time as the supply of pristine natural assets declines while demand, which seems impervious to economic shocks, increases with rising GDPs.

Trade: Seafood is the most highly valued internationally traded food commodity in the world, with 36 percent of all fish produced exported in 2013-2014. At US$139 billion in 2013, the export value of fish is more than double that of the next most traded commodity – soybeans. More than half of the fish trade originated from the waters of developing countries.

Challenges undermining the blue economy

The potential to grow the blue economy is limited by a series of challenges. For much of human history, aquatic ecosystems have been viewed and treated as limitless resources and largely cost-free repositories of waste. These resources, however, are far from limitless and we are increasingly seeing the impacts of this approach. The narrow coastal interface is oversubscribed by myriad sectors, and increasingly impacted by climate change. Rising demand, ineffective governance institutions, inadequate economic incentives, technological advances and insufficient management tools have led to inefficiently regulated or unregulated competition among users. This in turn has resulted in excessive use, and in some cases irreversible change, of valuable aquatic resources and coastal areas. In this increasingly competitive space, the interests of those most dependent and vulnerable (for example small-scale artisanal fishers) are often marginalized.

Most significant human impacts have been from:

- ***Overfishing*** as a result of technological improvements coupled with poorly managed access to fish stocks and rising demand. The FAO estimates that approximately 57 percent of fish stocks are fully exploited and another 30 percent are over-exploited, depleted or recovering. Fish stocks are further exploited by illegal, unreported and unregulated fishing, responsible for roughly 11 to 26 million tons of fish catches annually, or US$10-22 billion in unlawful or undocumented revenue.
- ***Habitat degradation*** due largely to coastal development, deforestation, mining, and unsustainable fishing practices as well as pollution, in the form of excess nutrients from untreated sewerage, agricultural run-off and marine debris such as plastics. Coastal erosion also destroys infrastructure and livelihoods.
- ***Climate change related phenomena*** -- both slow onset events like sea level rise and more intense and frequent weather events. Long term climate change impact on ocean systems is fraught with uncertainty, but it is clear that changes in sea temperature, acidity, and major oceanic currents, among others, threaten marine life and habitats.
- ***Unfair trade****:* Exclusive Economic Zones (EEZ), zones in which a state has special rights over exploration and use of marine resources, are crucial to the economies of island states, and often dwarf their corresponding land mass and government's administrative capacity. (In Tuvalu, for instance, the size of the EEZ is more than 26,000 times that of the land mass.) Moreover, much of the value from international seafood trade does not remain in developing countries of origin, let alone in fishing communities.
- ***Ad hoc development:*** Unplanned and unregulated development in the narrow coastal interface and near shore areas have led to significant externalities between sectors,

suboptimal siting of infrastructure, overlapping uses of land and marine areas, marginalization of poor communities, and loss or degradation of critical habitats.

Despite a range of actors and large investments, current attempts to overcome these challenges have mostly been piecemeal, with no comprehensive strategy (for example fisheries governance; improving ports; marine litter efforts). Even when one sectoral policy achieves some success, these results are often undermined by externalities from activities in another sector. Often, for example, coastal zone management efforts, or support to coastal fishers, are undermined by unbridled sand mining, ill-sited ports or aquaculture farms or unregulated tourism development. In coastal zones, declines in mangrove forest habitat resulting from wood harvest, sea level rise, and changes in sediment and pollutant loading from river basins combined with land reclamation for agriculture or infrastructure negatively impact fisheries by reducing or degrading spawning and feeding habitats. Loss of mangrove forests, for example, threatens profits from seafood harvests exceeding US$4 billion per year. In Belize, mangrove-rich areas produce an average of 71 percent more fish biomass than areas with few mangroves.

How can we overcome these challenges effectively, and at scale?

A more systematic approach, based on a better understanding of nationally defined priorities, social context and resource base, can guide sustainable and inclusive blue growth. Countries increasingly recognize that they need more knowledge about the biophysical characteristics, carrying capacity, synergies or trade-offs between sectors to ensure an efficient and sustainable management of different activities. Marine and coastal spatial planning and integrated maritime surveillance are needed to give authorities, businesses and communities a better picture of what is happening in this unique space. Digital mapping of maritime and coastal space and natural assets can form the basis for cross-sector analysis and planning in order to prevent conflicts and avoid externalities. Similarly, the growing science of data-limited stock assessments can provide critical information needed for improved fisheries management. In places such as South Africa and Indonesia, mobile technology is being tested to gather previously unavailable data, for example on fishery landings and fish stock health.

Integrated coastal zone management can enhance the protection of coastal and near shore resources while increasing the efficiency of their uses. Coastal zones are among the most productive areas in the world, offering a wide variety of valuable habitats and ecosystems services that have always attracted humans and human activities. Coastal zones are also among the areas most vulnerable to climate change and natural hazards. Risks include flooding, erosion, sea level rise as well as extreme weather events. These impacts are far reaching and are already changing the lives and livelihoods of coastal communities. Unlike sectoral approaches that can lead to disconnected decisions, inefficient resource use and missed opportunities, integrated coastal zone management (ICZM) seeks to coordinate the application of different policies affecting the coastal zone and maritime activities. ICZM is an iterative process which includes a variety of approaches, from mapping, delineation and demarcation of the hazard lines and coastal sediment cells, to building the capacity of agencies, institutions and

communities to make informed decisions about growing the blue economy within the carrying capacity of its living natural resource base.

Growing the blue economy requires assessing the value of marine resources. Not only are marine living resources poorly measured and understood, they are also rarely valued properly. In Mauritania, for instance, a study showed that the value of fisheries and other renewable marine resources was much greater than that of the minerals upon which the Government had previously based most of its marine resource management decisions. Understanding that in comparison with mineral resources, marine living resources are a) of much higher total value, and b) renewable, the Government adopted an alternative approach to development based on realizing the long-term potential for blue growth.

New data can also sway decision-makers. Well managed, the goods and services produced from aquatic ecosystems could make a much greater contribution to reducing poverty, building resilient communities, fostering strong economies and feeding over 9 billion people by 2050. For example, the World Bank's 2016 *Sunken Billions Revisited* study shows that fisheries properly managed, with a significant reduction in overfishing, could provide an additional US$83 billion to the global economy each year. That amount represents about two-thirds of official development assistance in 2012 and almost 30 times the annual net benefits currently accruing to the fisheries sector.

Investing in change to grow the blue economy

Armed with data and political goodwill, countries have different options to tap into the growth potential of the blue economy. The World Bank sees four key entry points for creating comprehensive change: investments in governance, technology, markets, and finance.

Investing in improved governance will create a pipeline of investable opportunities to grow the blue economy in a way that benefits national economies and local communities, while protecting resources for future growth. Effective governance is an essential condition to promote sustainable management of aquatic resources and environment, and ensuring biodiversity and ecosystem resilience, which in turn contribute to building community resilience against various shocks, including climate change. Effective governance will also help create an enabling environment for responsible private sector investments throughout the value chain by reducing risks and providing incentives for innovation. Finally, effective governance will enhance the contribution of fisheries, aquaculture and mariculture to the macro-economy, which will help improve the visibility of the sector and consequently resource allocation.

Governance enhancements should include a focus on including and empowering local communities. Analysis and results of fisheries rebuilding efforts around the world have demonstrated that when local communities and fishers have a voice in setting policy and management guidelines, these rules are much more likely to be followed and create lasting change. Empowering local communities also means clarifying tenure and resource access privileges, but in order to be effective, these must be accompanied with the capacity and

resources to take advantage of these clear rights.

The use of science, data and technology is critical to underpin governance reforms and shape management decisions. Without credible information on the state of the resource in a given fishery, and how quickly a population can be expected to grow and recover, it is impossible to design effective and defensible fisheries conservation and management measures. Similarly, for aquaculture to be sustainable, its environmental impacts must be measured, understood and limited. Without data, it is impossible to discern the impact of any management changes. This basic knowledge about the status and potential for recovery of a fishery or the sustainable expansion of aquaculture is essential for decision-making and to facilitate private investment.

Improving market infrastructure and access can create more sustainable outcomes that benefit the poor. Building on market demand for sustainable seafood can create incentives for good practices and drive new investment opportunities related to sustainably managed fisheries and aquaculture. Buyer demand for sustainable seafood in Western Europe and North America has driven substantial change in large fisheries that supply these markets. There is ample opportunity to use this same market demand to drive a shift towards best practices in developing world fisheries. This also helps reduce the risk, real and perceived, of investing in fisheries and aquaculture. Another critical step is to coordinate among investors, public funding agencies, and philanthropic donors to develop new deal structures that sequence or layer investments so that those with greater risk tolerance can begin to engage with fisheries.

With improved governance and incentives that align natural capital with investment capital, responsible finance can secure returns and contribute significantly to building the blue economy.
To date, the transition to more sustainable fisheries has been largely funded by development agencies and philanthropic sources of money. However, these types of capital alone cannot support the rate and scale of fisheries reform that is required on a global level. A growing number of investors are looking for opportunities that support positive social and environmental impacts. Good governance, including sustainable harvest levels, secure tenure, and robust monitoring and enforcement are required to reduce risk and encourage the development of bankable investments.

The World Bank Group offer

The World Bank Group (WBG) is uniquely positioned to provide the capital, convening services and technical assistance needed to unlock the potential of sustainably managed aquatic ecosystems and grow the blue economy

The WBG focuses on tailor-made measures for individual clients as well as fostering cooperation and knowledge-sharing.

- ***Capital*.** Skilled labor is in high demand in all developing countries and highly relevant to the blue economy. WBG investment in the broader ocean economy and in parallel skills training for fishers who can no longer make a decent living from the living aquatic resources can

produce win-wins for economic development across sectors and make space for conservation.

- ***Convening services*.** Bringing finance to development enables the WBG to foster dialogue and help align donor and national priorities and sponsor cooperation in developing the blue economy.

- ***Technical assistance*.** The WBG has a long history in provision of high-quality technology to developing countries (see box below).

Rethinking the blue economy
Most recently, the World Bank has been working with the government of Oman and community stakeholders to create a vision and implementation plan for a profitable world-class fisheries sector that is ecologically sustainable and a net contributor to Oman's economy. In Indonesia, the WBG is helping the government evaluate the potential economic contributions of investing in improved governance of fisheries and aquaculture. The Bank is also helping its clients rethink adaptation to climate change through a two-prong approach. First, we are developing a series of policy reform efforts designed specifically to encourage implementation of integrated coastal zone management in Morocco, Vietnam and Sri Lanka. In addition, the Bank is spearheading a major initiative on adaptation to coastal erosion aggravated by climate in West Africa, including through national and regional policy dialogues, and green infrastructure.

The Global Program on Fisheries (PROFISH), a multi-donor trust fund housed at the Bank, strengthens the WBG offer by supporting improved fisheries and aquaculture. PROFISH focuses on improving environmental sustainability, human wellbeing, and economic performance in the world's fisheries and aquaculture, with a focus on the welfare of the poor in fisheries and fish farming communities in the developing world.

To date, PROFISH investments of US$4.5 million in research, analysis and technical support have generated US$1 billion in World Bank lending; created ALLFISH, which leveraged US$1.5 million from the Global Environment Facility, into US$8.5 million of private sector investments into sustainable seafood supply chains; and facilitated a US$10 million IFC investment in aquaculture, a return on investment of 727 percent.

PROFISH builds its interventions on three pillars:

1. **Governance**: Reform policies, build public sector capacity, align economic interests with long-term sustainability, and promote conditions that encourage business growth in a sustainable seafood sector. Public-private dialogue, stakeholder inclusion and strategic partnerships with donors, technical expertise, the private sector and clients help shape the fisheries agenda and position fisheries as central to today's development challenges – poverty alleviation, climate change, and food security.

2. **Science and data**: Generate state-of-the art scientific knowledge to inform sustainable fisheries and aquaculture policy and investment. Predictive analytics, technical assistance and financing to leverage investment in fisheries across the World Bank Group and major donor portfolios.

3. **Markets and finance**: Reduce waste, improve fish value chains, increase market access, and drive new investment opportunities in sustainably managed fisheries and aquaculture through innovative financing mechanisms. This brings together public and commercial finance, philanthropic capital and private equity to invest cooperatively in projects that create jobs, grow local economies and generate positive social impacts to scale up sustainable solutions in the fisheries sector.

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