Input to The Review of The CTI-CFF Regional Plan of Action
Summary On Policy and Practice in Indonesian Ocean Sectors

October 2018

Prepared for:

CTI RPOA Review Committee

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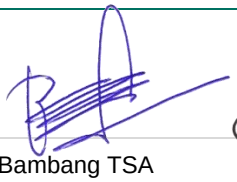
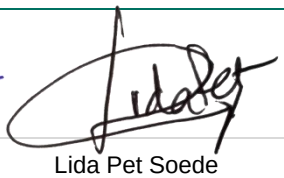
1	First version of *"Summary On Policy and Practice in Indonesian Ocean Sectors"*	2018-10-05	 Bambang TSA **Project Director**	 Lida Pet Soede **Project Manager**

1.0 INTRODUCTION

This report provides an input to the review of the Regional Plan of Action (RPOA) for the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF), which is being undertaken by PT Hatfield Indonesia www.hatfieldgroup.com. The specific objective of the RPOA review is to: *"Consider the usefulness of the RPOA as a framework to meet the priorities and needs of the member governments, development partners, and local stakeholders at regional, sub-regional, and national levels."*

The aim of this report is to provide a brief summary of policy and practices in Indonesian marine sectors that may be relevant to consider by the CTI-CFF as relevant to shape the CTI-CFF to move into the next 10 years. This report is based on a literature review. Information, views, and suggestions provided in this report are those of the author. Any errors in the document, factual or otherwise, are the responsibility of the author.

2.0 BACKGROUND

Indonesia is an archipelago of 17,504 islands, with the second longest coastline in the world officially measured at 99,093 km. Indonesia's 33 provinces are home to 261 million people, for which seafood is the primary source of protein. More than 64 million people live within 10 km of a coastline. Indonesia has more than 12,800 coastal villages, five different productive Indonesian seas as part of its maritime territory, and recognizes 11 different fisheries management areas. The region is globally important for marine fisheries, ranking second worldwide with 6.4% or 6.2 Metric Tons (MT) of global wild capture landings in 2014. In 2015, Indonesia was believed to have contributed 17-22% to global tuna production. Indonesia is also the largest shark fishing nation in the world, representing 13% of global landings.

Indonesia's oceans and coastal ecosystems are world renowned for their diversity and productivity with more than 2,500 species of fish and 569 coral species, equating to 67% of all coral species in the world, though 2017 data indicates that only 6% of the country's coral reefs are in excellent condition. More than 23% of the world's mangrove forests, which are important carbon sinks, line Indonesia's coastlines and contribute an estimated USD 1.5 billion annually to Indonesia's economy. Yet over the past three decades, Indonesia has lost 40% of its mangroves to land conversion. The country is also dealing with a rapid growth in visitors to places that lack efficient infrastructure and capacities to deal with the challenges that come with tourism expansion. Further, there is mounting global outcry over the obvious huge amounts of plastic waste in Indonesia's marine environments, to which Indonesia contributes significantly.

2.1 RECENT POLICY HISTORY

Indonesia sits at a crossroads of rapidly expanding populations, economic growth and international trade. Thus, the administration must balance the domestic needs of today with investments required to sustain future economic growth within a very dynamic regional geopolitical context.

Indonesia's natural capital is a critical asset, and the Indonesian government has adopted a scientific consensus that points to the need to invest in the protection of at least 10% of its productive coastal and marine ecosystems by 2020. Since the 1980s, Indonesia has ratified several ocean-related international conventions and is an important member of various bi- and multi-lateral collaborations with relevance to the management of marine and coastal resources. Early in the new millennium,

Indonesia displayed important regional leadership through promoting the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF) and forging significant partnerships aligning national and foreign finance behind an ocean conservation agenda. In addition, through partnerships with global finance institutions, bi-lateral collaborations, and by enabling a growing number of charitable foundations and NGOs who focus on building capacity for ocean conservation and fisheries reform, the Indonesian government has mobilized millions of dollars of international finance support over the last 10 years. Global, regional, and bi-lateral partnerships exist to exchange knowledge and increase collaboration for improved management of sensitive coastal ecosystems and shared fishing stocks.

Since the election of President Joko Widodo (Jokowi) in 2014, policy and practice has focused more on domestic reform and strengthening of the sovereign position of Indonesia with regards to its control over its waters and coastal and marine resources, and prioritization of these resources for domestic needs and priorities. President Jokowi declared his vision to make Indonesia the "World's Maritime Axis" and outlined an ambitious maritime doctrine to boost economic growth by improving connectivity between the islands of the Indonesian archipelago (Presidential Regulation No. 16/2017). Over the coming years, the ASEAN Economic Community is also likely to increase trade, which will accelerate the need for investment in maritime infrastructure. The abolishment of tariffs and trade barriers within the region is likely to bring an influx of goods to and from Indonesian ports, hence making the development of marine infrastructure even more essential for the country to able to compete with neighboring countries. Indonesia's dietary campaigns also started in 2014, with the aim to increase the average per capita fish consumption to 54.5 kg/capita in 2019[1]. To achieve such levels of fish consumption, the government has set ambitious 2030 seafood production growth targets.

The two main agencies relevant for implementing the current ocean policies are led by Minister for Marine Affairs and Fisheries, Susi Pudjiastuti and the Coordinating Minister for Maritime Affairs, Luhut Binsar Pandjaitan, respectively. Amongst other things, the Minister for Marine Affairs and Fisheries has focused efforts on eradicating Illegal, Unreported, and Unregulated (IUU) fishing and turning the tide against the loss of economic, social and food security values from its oceans. Feeding the nation, especially children, with healthy fish protein has become the driving force behind this initiative. The Coordinating Minister for Maritime Affairs has the main role of coordinating and synchronizing implementation of the national policy by four ministries – Transportation, Maritime Affairs and Fisheries, Tourism and Energy and Mineral Resources. While this coordinating ministry's focus is to strengthen and accelerate effective performance of ocean-related policy through these four agencies, the Coordinating Ministry also has its own priorities, which focus on addressing ocean waste, accelerating development of Indonesia's renewable energy sector, and improving domestic connectivity for transport and trade between Indonesia's many islands[2].

Both ministries appear to share a growing interest in accelerating aquaculture development to increase domestic food security, but also to increase foreign currency earnings through the export of high-quality seafood to a growing global market. However, inter-agency decision-making on the offsets of choosing different economic growth scenarios does not yet appear to occur effectively. Without sound information and tools that allow for appropriate and full consideration of current and future ecosystems services values, and a comparison of scenarios that may require different trade-

[1] It must be noted, however, that the dietary- or price preference for certain fish species over others is not considered.

[2] However, recent media coverage (March 2018) of the ministers' statements include confirmation that the deep-water oil project at Masela Block will continue to be supported for exploitation purposes.

offs for achieving more comprehensive outcomes that go beyond individual sectors, attaining these goals threaten Indonesia's marine resources and diverse ecosystems, the very foundation of the "blue economic engine".

2.2 SECTOR STATUS SUMMARIES

With the vast number of islands and associated ocean areas encompassed by the Indonesian territory, it's not surprising that the coastal and marine activities coordinated under each of the four ministries contribute in significant ways to the Indonesian economy, livelihoods, and environment. At first glance, it would seem that Indonesia's goal to develop its blue economy lies in its strategic position in the Southeast Asia region, with the potential to become a key player in providing logistical transportation, fisheries and aquaculture products, and tourism while supporting domestic economy and coastal communities. Tourism would seem to be a strong driver for providing the basis for a blue economy, as it provides a significant (and growing) contribution to the economy and livelihoods, strongly supports local businesses and communities, and can provide leverage for sustainable development and protection of ecosystem services.

2.2.1 Marine Capture Fisheries

Indonesia's fisheries are vital to the country's economy, accounting for close to 5% of gross domestic product[3]. Over the past eight years, Indonesia's fishing sector has grown at an annual rate of nearly 16%. The vast majority of this growth has been in aquaculture (33% growth rate), while wild capture fisheries have continued to grow at about 4% annually, despite many stocks being considered overexploited by the Indonesia's National Committee for Fish Stock Assessment[4]. The tuna sector is by far the largest of Indonesia's fisheries, both by volume of landings and economic value[5]. Historically, commercial fishing pressure has been most intense in western Indonesia, especially around Sumatra, Java, and Kalimantan. As those fisheries have been over-exploited, the greatest pressure now has moved east of Sulawesi, to Nusa Tenggara, Banda, Maluku, and Papua.

Indonesia's seafood industry exported nearly USD 5 billion in seafood in 2013[6] and the goal of the government is to continue to grow the fisheries and aquaculture industries, such that exports will reach USD 9 billion by 2019[7]. To achieve this growth in a sustainable manner, the country must invest in better fisheries management. In 2014, the United States ranked as the world's largest importer of Indonesian fishery products, accounting for 41% of total Indonesian fishery exports[8].

Small-scale fisheries are incredibly important in Indonesia for both livelihoods and provision of protein to diets and contribute substantially to Indonesia's seafood export market. Of the more than 2.2 million fishers in Indonesia, 95% of these are in small-scale fisheries sector[9]. The majority of these fishermen are unlicensed, and still use small boats (many without motors) and traditional equipment. Overall, nearly nine million people are involved in fisheries-related jobs in Indonesia.

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[3] *Asosiasi Perikanan Pole & Line dan Hand line* Indonesia brochure, 2015

[4] Personal communication

[5] Indonesia Desktop Fisheries Assessment, California Environmental Associates

[6] International Trade Center

[7] Republic of Indonesia: Medium Term Development Plan

[8] Global Business Guide Indonesia Fisheries Sector Profile, 2015

[9] Global Business Guide Indonesia Fisheries Sector Profile 2015

To date, fisheries policy has assumed that the stocks were in good health and that Indonesia's evolving fishing power could not negatively affect their productivity. Thus, there is often little support for recommendations that restrict effort and gear, which has contributed to wide-spread over-exploitation of many of Indonesia's fish populations. However, much progress has been made in Indonesia regarding the management of its diverse fisheries. This is partially related to ensuring Indonesia's compliance with rules of Regional Fisheries Management Organizations (RFMOs), and partially stimulated by import regulations and consumer trends in the markets for higher-valued commodities traded from Indonesia such as tuna. As well, many of the systems that underpin responsible tuna fisheries management have been strengthened, benefiting improved governance and management of other fisheries. The quality of the official fisheries statistics time-series is still debated[10], but these offer the only country- and sector-wide time-series data to inform decision makers.

More recently, the need to enhance traceability and transparency to serve the international market-driven demand for sustainable and socially responsible seafood has helped improve fisheries data collection. Support from international and non-governmental organizations (NGOs) has helped to improve Indonesia's capacity to collect catch and effort data, which in turn allows national scientists to improve their management advice to Indonesian authorities and decision makers.

2.2.2 Aquaculture

With the growing understanding of the limits to the expansion of capture fisheries, aquaculture development is seen as an important component of the seafood production sector. Aquaculture production in Indonesia has grown considerably over the past twenty years, and now produces significantly more product by volume than capture fisheries. Aquaculture production in Indonesia has averaged 33% growth over the past eight years, and the industry has provided close to a million new jobs during that time[11]. Aquaculture production nearly doubled between 2012 and 2015 (9.45 MT to 17.6 MT[12]), making Indonesia one of the top five aquaculture producers globally[13]. Seaweed farming, which is considered fairly benign environmentally compared to other forms of aquaculture, accounts for about half, with 9 MT produced in 2013[14]. Shrimp is the most significant farmed product, but production of milkfish is also quite high. Aquaculture of tilapia and *Pangasius* is growing.

The government recently quantified aggressive production targets in the aquaculture sector for different species and estimated a potential value based on assumptions of average farmed fish prices. Through 2030, annual growth for production of selected species is targeted between 6-18%. While the total production numbers appear impressive, annual progress towards the projected growth has not always been as hoped for by the government. On average, annual growth appears to have been in the double-digits, but year-over-year we see large fluctuations in growth for all aquaculture sectors. One reason for these fluctuations is that from year-to-year there have been some government strategies that get more attention than others at the national level. Also, it is not clear

[10] MMAF estimates that catches are underestimated at 11% of the total. Wageningen University & Research (WUR) and Bogor Agricultural University estimate that catches could be 33 to 38 percent higher than reported https://www.wur.nl/en/newsarticle/New-method-offers-improved-estimations-of-unreported-fish-catch.htm

[11] Indonesia Fisheries Desktop Assessment, California Environmental Associates, 2015

[12] Indonesia Fisheries Desktop Assessment, California Environmental Associates, 2015

[13] Hatfield can share a more complete and more recent aquaculture sector overview if needed.

[14] Indonesia Fisheries Desktop Assessment, California Environmental Associates, 2015

how consistently the action plans are rolled out at the province and district levels across the country. A government-generated map exists with indications for growth of aquaculture in ocean/coastal, brackish water and freshwater areas, but at this stage, it is not clear if these areas are integrated into local or provincial spatial plans. Currently, nearly 12 million hectares of Indonesia's coastal environment is used for aquaculture[15], and this is likely to increase, putting productive coastal ecosystems (primarily mangroves and near-shore reef environments) at risk if growth is not managed sustainably.

The Indonesian aquaculture policy and regulation framework is very comprehensive and technically outstanding. The Ministry of Marine Affairs and Fisheries supports aquaculture policies with comprehensive government programs and significant budgets; however, the expansion of aquaculture production is lagging behind. Private sector investment is not very forthcoming and a business-as-usual approach will result in large environmental impacts while falling short of achieving the 2030 aquaculture targets.

A solid business case for investing in aquaculture development could align government support with investor interests. Recently, more studies have been concluding that the production of fish protein compares favorably to production of other animal proteins in terms of its climate change footprint. In this context, the aquaculture sector in Indonesia becomes relevant as part of Indonesia's global commitment to reduce carbon emissions and mitigate climate change impacts. It also provides a solid business case for prioritizing public support to enable private investments in fish farming over other food production sectors, and for inviting more foreign investment to help Indonesia further reduce its negative climate change footprint from aquaculture.

2.2.3 Marine Tourism

Development of marine tourism, after securing food security from seafood, has been another highly profiled priority of the Indonesian government[16]. Indonesia has a large, fast developing, and increasingly segmented tourism industry – with a particularly large domestic tourist market. Indonesia's tourism industry is ranked 17th in the world in terms of size and is the 12th fastest growing. This makes it the largest and also fastest growing of the six CTI-CFF countries. Tourism started slowly in the 1970s in Indonesia and was restricted in the early stages by internal policy barriers, currency appreciation induced by an oil boom, and high costs compared to neighboring destinations.

From the 1980s onwards, Indonesia's tourism industry grew strongly, from 562,000 tourists in 1980 to over 11 million arrivals in 2016. The government aims to attract 20 million visitors a year by 2019. In general, monthly tourist arrivals in Indonesia have averaged 782,877 from 2011 until 2018, reaching a high of 1,178,407 in August 2017 and a record low of 548,821 in January 2011[17]. Spalding et al (2017) estimate that 29% of Indonesia's tourism is to areas that are described as "coastal, non-urban". Of the tourists visiting "reef-coast" areas, 20% visit "on-reef" locations. Within the estimated total tourism value of USD 3,097.5 million per year, Indonesia's 'reef adjacent' tourism was valued at USD 1,106.2 million per year while "on-reef" tourism was valued at USD 199.2 million per year. The total numbers of tourists visiting or otherwise benefiting from the coral reefs would be much higher.

[15] Global Business Guide: Indonesia's Fisheries Sector, 2015

[16] In 2016, the tourism industry accounted for 5.6% of total employment (6,708,500 jobs). This is expected to rise by 1.7% in 2017 to 6,820,000 jobs and rise by 2.9% pa to 9,080,000 jobs in 2027 (6.2% of total).

[17] Source: https://tradingeconomics.com/indonesia/tourist-arrivals

Given its overall economic significance, it is not surprising that the government is firmly focused on growing the tourism industry. It recently announced a quadrupling of the tourism promotion budget to USD 98.4 million (IDR 1.3 trillion), primarily to be focused on a 'further marketing push in international markets'. The marketing will focus on the Ten New Tourism Destinations which are Lake Toba, Borobudur, Mandalika, Tanjung Lesung, Tanjung Kelayang, Labuan Bajo, Wakatobi, Bromo Tengger Semeru, Morotai, and Kepulauan Seribu[18], four of which are marine destinations. The Coordinating Minister for Maritime Affairs continues to stress in popular media that tourism development must be accompanied by attention to the cleanliness of the surrounding environment.

2.2.4 Oil and Gas

Oil and gas provide 46% and 23% of Indonesia's total energy sources, respectively. Between 2015 and 2025 it is expected that Indonesia's energy needs will grow from 166 million MT of oil equivalents (MTOE) to 412 MTOE, and transition to 25% oil and 22% gas. Oil and gas are still the main sources of income after state taxes, contributing USD 13.1 billion to the state revenue. Yet despite being a former member of OPEC, Indonesia is now importing most of its energy supplies.

Indonesia stands out in terms of the total size of the areas already assigned to offshore energy exploration and production, which is unrivalled in the broader region. To date over 1 million km^2 of sea floor has been licensed as oil and gas blocks. This coverage is expected to expand substantially as Indonesia is aggressively working to revitalize its own oil and gas production in the coming years. Primary offshore oil and gas projects include the Indonesia Deepwater Development (IDD) in Makassar Strait (Makassar Block) by Chevron Indonesia (production of 110 MMSCFD [million metric standard cubic feet per day]), the deep-water natural gas project also known as the Abadi field in the Masela Block by INPEX Ltd (1,200 MMSCFD), and the offshore Jangkrik Complex near Makassar Strait operated by ENI Muara Baku (450 MMSCFD).

The main challenges facing the national upstream oil and gas sector are the: i) rate of decline in production; ii) higher than average operating costs due to the use of old equipment; iii) reserve replacement ratio ("RRR") smaller than one; and iv) longer time required to develop new resources due to the reserves being location in the eastern region, especially in the deep sea. The national downstream gas infrastructure is also inadequate, resulting in excess liquid natural gas (LNG) cargoes being sold in the spot market. Gas production may need to be curtailed due to insufficient capacity of the midstream-downstream infrastructure. As a result, attractive incentives are required for investors to invest in exploration activities for new reserves, and this partially has fueled the recent focus on improving infrastructure in eastern Indonesia.

Some of Asia's biggest oil and gas fields are located or developed in Coral Triangle waters. Exploration and exploitation of these oil and gas reserves comes with significant risks to coastal and marine ecosystems and wildlife. In addition, a new ocean industry, Deep-Sea or Marine Mining, is under development[19]. Indonesia's areas for deep-sea mining activities (MEBs) have considerable overlap with Priority Conservation Areas (19.4% of the total area).

[18] To accelerate the development of tourism destinations established by the Agency Management Authority (BOP) of Tourism in each of these tourist destinations.

[19] Kahn et al, 2015

2.2.5 Shipping

Coral Triangle waters host one of the busiest shipping lane networks in the world. Indonesia's sea lanes connect Asia's economies with bulk supplies of raw materials and the global market for consumer products and many ships must pass through several narrow inter-island straits and sea lanes, increasing the risk of accidents. Maritime piracy and securing sea borders has been one of biggest problems in Southeast Asia in 2017. Armed robberies are considered an accepted risk while sailing in these waters, especially the busy shipping lanes of the Malacca and Singapore Straits host at least 120,000 ships each year and account for one third of the world's commercial ships.

Indonesia has a unique geographical position as it includes both the Indian and Pacific Ocean shipping routes[20]. Indonesia is thus a prominent stakeholder of the regions marine transportation network and its waters are extensively used by international ships in transit (i.e., "innocent passage"). Of the total area of the sea lanes in Indonesia about 23.4% overlap with the country's Priority Conservation Areas, which include marine corridors and green turtle habitat. Furthermore, 18.0% of sea lanes run through the country's MEBs, which creates a high degree of potential interaction between these two offshore sectors. With shipping lanes crossing through both ecologically important marine areas and oil and gas and potential deep-sea mining areas, there exists an urgent need to review the efficiency of both domestic and international shipping and transport in Indonesian waters.

Indonesia has more than 250 shipyard companies[21] and about 1,700 formal and informal ports, including 111 commercial ports and 11 container ports[22]. In an effort to stimulate national shipping capacity, the Ministry of Trade issued a controversial decree[23] which requires that transportation of specified goods and products (coal, palm oil, rice, government procurement goods) within Indonesian territory can only be transported using Indonesian transport companies. This regulation was protested by many parties and puts at risk Indonesia's business climate and confidence of foreign investors. The government has already deferred implementation of the regulation, due to lack of national capacity in most of the transportation sectors covered by the regulation.

Indonesia's Port Development Master Plan calls for a significant investment in development of port facilities with aims to improve shipment and transshipment capacity in Indonesia and capture a greater share of the international shipping market. Ship traffic is predicted to increase significantly through Indonesia, and through the Coral Triangle in particular due to the resources boom in Australia (Western Australia and Queensland "Resource Routes"). In addition, growth of both national and ASEAN regional shipping will substantially increase the overall ship traffic density, including medium to small cargo vessels, passenger ferries, and fishing fleets. The energy sector component alone will have a major effect on Australia-Asia shipping along both the east and west coasts of Australia and their "innocent passage" routes through the waters of Indonesia, Timor-Leste, Philippines, Papua New Guinea, and the Solomon Islands especially. Intense shipping traffic may bring both acute and long-term impacts, including risks to marine life, PCAs and local livelihoods.

[20] Kahn and Vance-Borland. 2013. Marine Conservation Planning and the Offshore Oil and Gas, Deep-Sea Mining, and Shipping Industries.

[21] IPERINDO, 2017

[22] Global Business Guide, 2012

[23] PerMenDag No. 82/2017

2.3 DISCUSSION AND RECOMMENDATIONS

Indonesia sits in a region characterized by strong economic forces, specifically those that conservation organizations seek to challenge and transform. The products and services that Indonesia provides to the region and indeed the world, are affected by market drivers that allow these forces to flourish. Anyone aiming to improve ocean governance and ocean resource exploitation will need to build strong arguments for powerful regional and national alliances capable of exerting strong influence and driving twenty-first century reform.

Within Indonesia, several regions face challenges from instability and security issues rooted in historical and ethnic conflicts and amplified by either increasing resource scarcity (e.g., in the case of most capture fisheries) or by feelings of deprivation among local people in resource-rich provinces (e.g. Papua)[24]. This must be considered when planning for magnification of successes in one area compared to other areas. In several districts, corruption fueled by decentralization of authority and fragmentation of institutions has led to poor governance, limited transparency, and inadequate involvement of civil society in decision-making and policy dialogue related to marine resource management and conservation. This in turn has left national institutions unable to carry out the management duties required to build back and maintain the ecological productivity of the system over the long-term. Also, Indonesia faces rapid social change – change that may influence how people view the role of conservation organizations, which are spearheading the science-based inputs required for urgent marine management.

With that as context, for most interventions to be successful, a number of enabling conditions are needed:

- Political will is arguably the single most important foundation required for the profound and lasting changes needed to ensure long-term outcomes.
- Private sector transformation to reduce impacts initially where they are most immediate – on the water and in the communities.
- Public awareness provides growing pressure to follow through on public and private sector commitments and the constituency to move to lifestyles that are more within the boundaries of our one living planet.

Learning important lessons from nearly 50 years of ocean action, it has become clear that for conservation in Indonesia to be successful, it must yield both ecological and socio-economic benefits. Unfortunately, the current leadership does not yet connect this to a solid understanding of the relevance of integrated spatial management across multiple sectors. In addition, both ministries have not put conservation or building resilience against climate change very high on their priority agendas. Both Ministers, however, do understand and underwrite the benefits of protecting nature for economic development and for supporting sustainable coastal livelihoods, but their focus has been on other priorities. This is further compounded by challenges posed by the rapid expansion of urban areas, the related infrastructure development in coastal areas, and continued growth of sectors that impact the quality of the coastal and marine areas, such as tourism, coal mining, agriculture, aquaculture,

[24] Tadjoeddin MZ. 2007. A future resource curse in Indonesia: the political economy of natural resources, conflict and development. CRISE Working Paper No. 35. Centre for Research on Inequality, Human Security and Ethnicity, University of Oxford, UK.

shipping, and the oil and gas sectors that are pushed by other ministries to contribute and retain positive economic growth for Indonesia.

Some opportunities to influence this include:

- Quantifying and mapping ocean wealth. The concept of accounting for natural capital[25], which involves calculating and measuring the value of natural ocean resources in both physical and monetary terms, can be used to support better decisions for development as they relate to the use of consumption of natural resources. Success will come when the valuation of ocean benefits is a driving factor in policy decisions at all levels.

- Reviewing the importance of aquaculture and reset its trajectory towards sustainable growth. Priorities must be set to optimize budget allocations and to support more purposeful and effective progress towards production targets that are more realistic, minimize the negative impacts of aquaculture expansion, and broaden support and enabling conditions for private sector investment in this sector.

- A multi-stakeholder review of different trade-off scenarios to account for ocean and coastal ecosystem values. A fine-scale and targeted spatial analyses would provide important insights on how best to proceed with specific marine spatial management approaches. This would be one of the first such studies for the region as a whole, and additional work will ultimately lead to the development of an important decision support tool.

[25] World Bank description of Natural Capital Accounting: http://www.worldbank.org/en/topic/environment/brief/environmental-economics-natural-capital-accounting

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