

# Indonesia: Oceans for Prosperity: Reforms for a Blue Economy in Indonesia

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## FULL TEXT

Oceans are vital for Indonesia's economy and social welfare.

With more than 17,500 islands, 108,000 kilometers of coastline, and three-quarters of its territory at sea<sup>2</sup>, oceans are central to Indonesia's prosperity through economic activities, including capture fisheries and aquaculture, coastal tourism, marine construction, and transportation. Indonesia has the world's second largest fishery sector worth around US\$27 billion to GDP and providing 7 million jobs and over 50 percent of the country's animal-based protein needs. Oceans are a key asset for the country's tourism industry worth around US\$21 billion to GDP in 2019 (marine and non-marine) (WTTC 2020). In 2016, 44 percent of foreign visitors undertook marine and coastal (MAC) tourism activities as part of their visit (Ministry of Tourism 2016). Yet there is substantial opportunity to grow the long-term value of these sectors further. Research suggests that improvements to fisheries management could increase the long-term value of production by over US\$3 billion per year, relative to returns under a scenario in which current practices continue and fish stocks decline (Costello et al. 2016). Sustainable aquaculture could be expanded, prioritizing low-trophic level species, including seaweed. While the global tourism outlook is currently bleak amidst the COVID-19 pandemic, tourism has rebounded following past crises (although recovery times and profiles vary) (World Bank 2020a). There are future opportunities for carbon payments in coastal ecosystems, particularly mangroves and seagrasses. These economic opportunities are built upon a foundation of natural assets: man-groves, coral reefs, and seagrasses, among other valuable ecosystems. A 2017 study estimated that Indonesia's coral reefs underpinned tourism revenues of around US\$3.1 billion per year through the recreation activities they supported (e.g., diving and snorkeling) (Spalding et al. 2017). Reefs further support fishery revenues of some US\$2.9 billion per year by providing critical fish habitat (UN Environment 2018). Coastal infrastructure also relies on these ecosystems: coral reefs help Indonesia avoid an estimated US\$0.6 billion in flood damages annually (Beck et al. 2018), a value that will grow as coastal areas become more developed and climate change impacts become more severe.

However, there are challenges to the extent and integrity of Indonesia's marine and coastal ecosystems that, if not managed well, could undermine the potential of Indonesia's ocean economy.

In 2017, 38 percent of the nation's marine capture fisheries were estimated to be overfished (with a further 44 percent fully fished),<sup>3</sup> reducing returns, export earnings, government revenues, and the wellbeing of coastal communities. While foreign incursion into Indonesian waters has been effectively controlled by the Government of Indonesia (GoI), management of the domestic fleet remains in need of strengthening. Indonesia's fleet comprises over 600,000 vessels, more than 90 percent of which are small vessels (under 10 gross tonnes) collectively responsible for over half the total catch (CEA 2018). Many are unregistered and unmonitored. Implementation of the Fisheries Management Area (Wilayah Pengelolaan Perikanan, WPP) system, a critical institution to strengthen the governance of Indonesia's fisheries, remains unfinished, and coordination across level of government requires clarification of responsibilities.

Meanwhile, around one-third of Indonesia's coral reefs are in poor condition according to recent surveys by the Indonesian Institute of Sciences (Lembaga Ilmu Pengetahuan Indonesia, LIPI) (LIPI 2020). The contributing factors include destructive fishing and pollution, including agricultural and urban runoff and waste plastics. The damage is

further exacerbated by climate change. Studies show that more than 80 percent of Indonesia's reefs are expected to experience coral bleaching in five out of ten years throughout the 2030s (Burke et al. 2012). Mangroves are similarly showing substantial losses. Indonesia is home to the largest extent of mangroves in the world (totaling 3.31 million hectares, around 20 percent of the world's total), yet has some of the fastest rates of loss in the world (between 6,200 and 52,000 hectares per year, varying by year and classification technique used) (Goldberg et al. 2020; Murdiyarso et al. 2015). Clearing for aquaculture accounts for nearly half of mangrove removal, while clearing for oil palm contributes a further 16 percent (Richardson et al. 2018). Over 50 percent of mangroves are in a degraded condition (MMAF 2019; MoEF 2019). Important MAC tourism sites are impacted by basic infrastructure and services deficiencies for residents. For example, in 2015, prior to its prioritization for tourism development, Lombok's tourism areas were characterized by low average household access to piped water supply (45 percent of households had access), sanitation (48 percent), and solid waste collection services (26 percent). The resulting environmental pressure is compounded by growing visitors' and businesses' needs. The impact of these deficiencies on tourists' perceptions can be seen in online reviews: topics of dissatisfaction expressed on TripAdvisor by tourists along Lombok's southern coast included the poor state of local sanitation and noticeable pollution (Horwath 2017). Early signs of environmental degradation can be seen at Komodo National Park, where the proportion of tourists encountering marine plastic debris increased from around 10 percent in 2009 to over 50 percent in 2017 (Harvey et al. 2018). More broadly, marine plastic debris impacts ecosystems, human health, and ocean economy sectors, particularly fisheries, coastal tourism, and commercial shipping. Recent estimates of the economic damage of plastic pollution exceed US\$10.8 billion annually in the Asia Pacific Region alone, including over US\$450 million per year for Indonesia (APEC 2020). These estimates are direct costs only. Costs of remediation and indirect damage to ecosystems, if known, would increase this estimate substantially. In 2020, World Bank modelling using local data estimated that Indonesia contributes between 0.20 and 0.55 million tonnes of plastic to the oceans each year.

Compounding these long-term challenges are more immediate pressures from the COVID-19 pandemic.

The World Bank estimates that Indonesia's real GDP shrank by 2.2 percent in 2020, the first recession in two decades, and a stark contrast to pre-COVID-19 predictions of 5.0 percent growth (World Bank 2020c). Without social assistance measures to mitigate the shock, the pandemic could have led to an estimated poverty rate increase of 3.0 percentage points, equal to an additional 8.5 million Indonesians falling below the poverty line (World Bank 2020c). Poverty is likely to rise even with the Gol's substantial assistance measures, as unemployment hit its highest rate (7.1 percent) since 2011. The impact will be felt in all sectors of the economy. The global Fish Price Index showed an 8.3 percent decline year-on-year (YoY) between January and May 2020, with prices for select species in Indonesia falling by as much as 60 percent.<sup>5</sup> Between January and October of 2020, foreign visitor arrivals to Indonesia were down 72 percent YoY. Beach clean-up events are collecting increased quantities of pandemic-related medical waste. Such waste was reported to amount to 16 per cent of the total garbage floating in Cilincing and Marunda river estuaries in Jakarta Bay in March and April 2020 (Yang 2020). Both long and short-term challenges can be addressed through a blue economy strategy; such a strategy is being pursued by the Gol through a range of initiatives.

A blue economy generates economic and social benefits while ensuring oceans' long-term environmental sustainability (World Bank 2017a). In other words, a blue economy is a sustainable ocean economy. It requires policymaking based on science and data, inter-sectoral coordination, and participation of diverse stakeholders in decision-making. Investments in skills, institutions, infrastructure, and services are needed. These investments, in turn, require new mechanisms for financing, along with better use of existing funding streams. Oceans-led development and a transition towards a blue economy is a priority for the Gol. Specific goals aligned with blue economy principles are seen in the National Medium-Term Development Plan (Rencana Pembangunan Jangka Menengah Nasional, RPJMN), the 2017 Oceans Policy, and a wide range of initiatives underway. One example is seen in the strong stance taken by the Gol against foreign illegal, unregulated, and unreported (IUU) fishing. While controversial in some respects, these efforts have reduced pressure on fish stocks from foreign sources, creating

a near-term opportunity to rebuild key fisheries (Cabral et al. 2018). Both central and provincial governments are working to enhance integrated and sustainable use of coastal and marine ecosystems through marine spatial planning, a tool for resolving oceans and coastal land use conflicts by delineating zones for specific uses through a participatory process. Most provinces have developed marine spatial plans for their waters (Rencana Zonasi Wilayah Perairan dan Pulau Pulau Kecil, RZ-WP3K), and will integrate these plans with Indonesia's broader (terrestrial and marine) spatial planning framework (Rencana Tata Ruang Wilayah, RTRW) in the coming years. The Gol has similarly made substantial progress in expanding marine protected areas (MPAs) to over 23 million hectares (meeting the Aichi target<sup>7</sup> of 20 million hectares), with a further goal of reaching 30 million hectares by 2030. Improving management of these areas is now a priority. To monitor progress, MMAF has been implementing a scorecard system (Evaluasi Efektivitas Pengelolaan Kawasan Konservasi Perairan, Pesisir dan Pulau-pulau Kecil, E-KKP3K) across MPAs to provide a rigorous and consistent means of tracking management effectiveness, and has recently developed an upgraded version with increased focus on socio-economic and environmental outcomes. The Gol launched the National Action Plan on Marine Debris in June 2017, with the goal of reducing marine debris by 70 percent by 2025. Efforts to meet the goal include moving waste management infrastructure away from waterways, as seen in the Government's Citarum Harum Program along the Citarum River. Other actions include re-cent Extended Producer Responsibility (EPR) legislation on consumer goods manufacturers, which obliges firms to reduce their total waste by 30 percent by 2029.<sup>8</sup> Taxes and bans on single-use plastics are being enacted by provincial and city governments to discourage plastics consumption, including in Jakarta and Bali.

In 2018, the Gol launched the Integrated and Sustainable Tourism Development Program (Program Pembangunan Pariwisata Terintegrasi dan Berkelanjutan, P3TB) to bring a more holistic and inclusive approach to tourism development. The program incorporates planning functions, support to businesses, community empowerment, and environmental and cultural asset management, along with investment in tourism-relevant basic infrastructure and skills. The program focuses on a selection of ten priority tourism destinations, starting with Lombok, Borobudur-Yogyakarta-Prambanan and Lake Toba, and will in 2021 include Komodo National Park and Labuan Bajo, Bromo-Tengger-Semeru, and Wakatobi. Key to the program are integrated tourism master plans (ITMPs), which aim to develop destinations while avoiding degradation of the natural and cultural assets that attract visitors (MPWH 2020).

Developing a blue economy will require substantial investments and policy reform that build on these initiatives. The recommendations outlined in this report include:

Policies for improved management of oceans and coastal areas:

Indonesia's WPP system and its supporting institutions are the basis for fishery management. While development of the system is recognized as a national priority, key elements are yet to be finalized. WPP councils (Lembaga Pengelola Perikanan, LPP) require budgets, human resources, and a strengthened legal mandate. LPPs' primary management tool-fishery management plans (Rencana Pengelolaan Perikanan, RPP)- are awaiting inclusion of evidence-based harvest strategies. Roles and responsibilities for fisheries management across levels of government (national, provincial, district) and stakeholders (government, private sector, civil society, academia) require further clarification, with management measures linked to LPP advice and decisions. Indonesia has an opportunity to be a world-leader in marine and coastal spatial planning, building on recent spatial plan development and implementation efforts. Compliance with spatial plans will need to be ensured through integration of plans with business permitting systems, notably issuance of business licenses. Longer-term, a marine and coastal cadastre (a spatial title registry, identifying property rights over specific areas, including aquaculture sites and tourism facilities) will be needed to complement these systems and help manage conflicts in the face of increasing demand for marine and coastal areas. Rights-based fisheries management-which has found considerable success internationally- has potential for expansion in Indonesia. Under such systems, governments grant fishing privileges to firms or communities to a quantity of catch (within an overall harvest limit), to a defined area, or to apply a defined level of fishing effort. These privileges can be linked to the existing

license system and be based on inputs (e.g., fishing days), outputs (fish caught), as well as spatial zones. Adat communities<sup>10</sup> can currently receive such privileges for use of defined spatial areas. However, refined legal mechanisms are now required to extend this system more widely, for example to include traditional and local communities.<sup>11</sup> While such mechanisms have faced legal challenges previously, legally robust mechanisms for rights-based approaches are feasible for Indonesia (Waddell 2012).

The GoI has set a commendable target for mangrove restoration - 600,000 hectares to be restored by 2025. If reached, this would represent a dramatic acceleration of restoration efforts, with MoEF reporting that around 50,000 hectares of mangroves were restored or replanted between 2010 and 2016, an average of 7,000 hectares per year. Yet rehabilitation costs are high relative to conservation measures that could reduce mangrove loss in the first place. Indonesia has a moratorium on land conversion for Indonesia's primary forests. This could be extended to mangroves that have similarly high ecological, carbon-sequestration, and economic values (Murdiyarto et al. 2015). When reviewing its Nationally Determined Contribution (NDC), Indonesia could consider including mangroves in its land use emissions baseline to allow mangroves to generate emissions reductions payments in carbon-based schemes such as REDD+. Greater clarity around institutional responsibility for conserving and restoring mangroves would help facilitate these actions.

Systems for improved data and monitoring:

Fisheries management plans and operationalization of harvest strategies rely on area- and species-specific data. Multiple sources of such data are already available. However, they are not yet fully integrated within key databases or fully informing management. Improvement of landing surveys, including expanded geographic and species coverage and refined analysis (e.g., use of indicator species instead of aggregated species groups) would be beneficial, along with accelerated rollout of e-monitoring and reporting systems. Continued integration within MMAF's Pusat Data Statistik dan Informasi (PUSDATIN) system will contribute to these needs. Improved data will also benefit tourism. Environmental impact monitoring systems could be expanded at MAC destinations to detect problems and inform mitigation measures. The GoI has encouraged the establishment of Sustainable Tourism Observatories (STOs) in priority destinations to monitor risks to natural and cultural assets and identify growing pressure points, which could be expanded across popular MAC destinations. In the short term, STOs already established can take advantage of the COVID-19 period to monitor ecosystems in the absence of large tourist numbers, setting useful baselines to later benchmark tourism impacts. Remaining gaps in ecosystems monitoring continue to hinder management decisions. Information on the basic status and trends in seagrasses, for example, is extremely limited. Agreement on consistent methods and data formats for measurement and harmonizing coastal ecosystem datasets would help alleviate such challenges. Such efforts are being promoted by LIPI's mangrove and coral reef health indices and would benefit from further support. Transparency over the implementation of spatial plans would benefit from a scorecard system with progress indicators, akin to the MPA scorecard system. Scorecard systems are most valuable if they go beyond measuring inputs and processes (such as regulations, management plans, and budgets) to also include ecological and social-economic impacts such as the extent of mangroves or quality of corals.

Financing, incentives, and investments:

Improved basic services and infrastructure are needed to manage pollution and waste generation across Indonesia. The required investment for urban areas alone is estimated to exceed US\$5 billion. Investment could be targeted at high priority areas for marine debris reduction, such as coastal and riverside cities, and MAC tourism sites. More immediately, coastal clean-ups can be used to address plastics build-up, particularly in those coastal areas with sensitive ecosystem and tourism values, and to raise awareness of the issue. These clean-ups can draw on community support by working in partnership with schools and community groups, which can also help reduce costs.

For MAC destinations at risk of overcrowding, measures to manage the flow of visitors would be beneficial. These include: (1) use of tiered pricing with higher access fees for more fragile areas; (2) congestion pricing, whereby above-average entrance fees are charged for certain tourist sites during peak demand periods; (3) minimum

expenditure thresholds for tourists; (4) technologies to control crowd flows such as scheduling apps that allocate visitors to specific time slots at key attractions; and (5) the development of alternative tourism attractions to divert and re-distribute visitors away from popular but environmentally-fragile attractions. Measures affecting pricing could be tiered by income or origin to ensure fair access for local tourists. Taxes and bans on plastics could be expanded to increase the transition to alternative or reusable products. The 2020 approval by parliament of a Ministry of Finance (MOF) proposal to include certain plastics as excisable goods<sup>12</sup> was an important step forward. Financial incentives could also be introduced to reduce plastic waste from marine activities, such as fishing gear losses or discards. Programs can build on the experience of pilots in Papua and Java that paid fishers to collect discarded nets. EPR regulation would benefit from institutional strengthening for monitoring and enforcement and could be expanded over time to support a transition to a circular economy. The regulation, passed in late 2019 and under implementation, could be complemented by other measures such as deposit-refund systems, standards and technical guidelines for recyclable materials, and minimum recycled content requirements in select products where technically and economically feasible. International coordination around these measures would help to create a sufficiently large market for the private sector to invest. Options for public procurement that prioritizes recycled materials could also be explored. While recovery from the impacts of the COVID-19 pandemic will be the priority of all governments over the short- and medium-term, there are opportunities to align recovery efforts with the long-term needs of oceans sectors. Key management systems-such as ITMPs, spatial plans, and harvest strategies for fisheries-could be further developed, tested, and implemented in a context of low demand and low development pressure. As the recovery progresses, these systems would gradually become binding. Recovery packages could be structured to promote livelihoods and jobs while strengthening long-term coastal ecosystem resilience. These could include labor-intensive coastal and marine conservation and restoration activities in hard-hit tourism-dependent communities, and livelihood diversification programs in fishing communities to reduce pressure on overexploited stocks and support transitions to more productive sectors. The full report is available on <http://pubdocs.worldbank.org/en/723001616600148684/Indonesia-Oceans-for-Prosperty-Report.pdf> (World Bank)

## DETAILS

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